

**STEEL
ROLLING DOORS**

**LABELED
FIRE DOORS**

**LABELED
FIRE SHUTTERS**

**METAL ROLLING
GRILLES**

RoL-TOP DOORS
(WOOD OR STEEL)

BIFOLDING DOOR
(WOOD OR STEEL)

**DOOR OPERATING
EQUIPMENT**

**WOOD ROLLING
PARTITIONS**



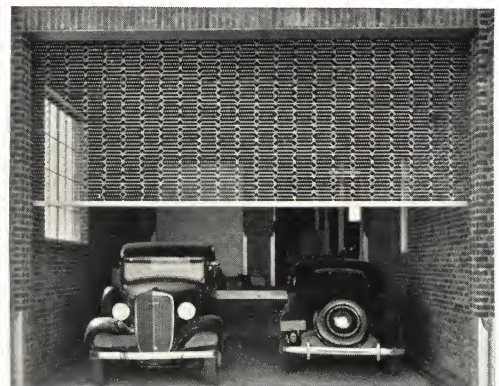
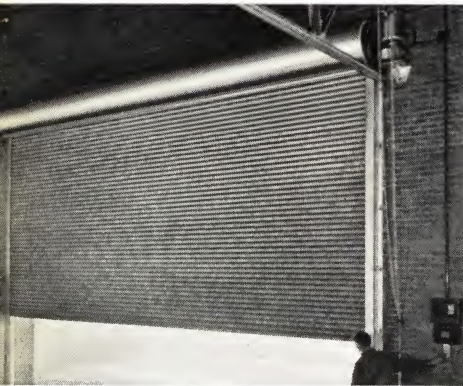
KINNEAR

ROLLING DOORS



**MADE TO FIT
YOUR INDIVIDUAL
REQUIREMENTS BY
EXCLUSIVELY DOOR
MANUFACTURERS**

Will You Always be Satisfied with the Door You Choose...?



KINNEAR DOOR USERS THROUGHOUT THE WORLD HAVE DEMANDED 9 MAJOR DOOR REQUIREMENTS

1 • EASY, QUICK OPERATION

Operating upward, clearing all ground obstructions and accurately and permanently counterbalanced, Kinnear Doors operate with speed, ease and smoothness . . . effecting substantial savings in time and effort.

2 • SAVING SPACE

When open, Kinnear Doors are stowed overhead, where space is cheap—not requiring expensive floor or wall space. Merchandise or materials can be stored within a few inches of either side of the door, without hampering its operation.

3 • GREATER DURABILITY

By virtue of their upward-action, Kinnear Doors are out of the way, less subject to damage from moving objects, wind and elements. Designed by experienced door engineers, no point has been overlooked in fabricating a door that will best withstand the effects of the elements and hard, rough usage. This, coupled with Kinnear's nation-wide servicing organization, means negligible maintenance costs.

4 • FIRE PROTECTION

Kinnear Metal Rolling Doors are fire-resisting, providing an effective guard in case of fire. When fire protection is of primary importance, the use of Kinnear Automatic, Labeled Rolling Doors reduces insurance premiums substantially, through endorsement by the Underwriters as a fire door and bearing their label. They can also be used for service purposes.

5 • MAXIMUM SAFETY

Kinnear Doors are built with strength and quality in excess of mechanical requirements. Springs are individually tested. Automatic Doors are provided with a governor safety device and other special safety features.

6 • WEATHER GUARD

The curtain or panels are of weather-resisting materials and given a high grade protective coating. If special weathertight features are required, this is accomplished by the use of weather-seal guides, special endlocks, special bottom bar treatment, etc.

7 • ECONOMICAL INSTALLATION

Kinnear Doors are designed to be installed with the minimum preparation of the opening, and to facilitate rapid and economical erection.

8 • NEAT APPEARANCE

Open or closed, Kinnear Doors give the openings a clean-cut appearance to harmonize with the architectural treatment of the building. All mechanism is neatly arranged, with concealed parts wherever possible.

9 • THEFT PROOF

Strongly built and with provisions for locking, Kinnear Doors are dependable guards against thieves, marauders and rioters.

Yes! IF YOU SPECIFY

- UPWARD OPENING TYPE DOOR
- 9 MAJOR DOOR REQUIREMENTS
- COMPLETE DOOR SERVICE

Satisfaction . . . the word that wins the favor of clients and architects alike, has been the watchword of THE KINNEAR MANUFACTURING COMPANY since its founding.

By strict adherence to this formula "The Upward-Opening Type of Door with the 9 Major Door Requirements Plus a complete Door Service" they have guaranteed to all concerned the satisfaction that one demands, regardless of the type of door he chooses, or the usage to which it is to be put.

The Kinnear Organization of Engineers, Designers and Skilled Workmen devotes itself exclusively to the manufacture of doors and door equipment. As the originator of the interlocking slat door and leaders in the field of the upward-opening type of door they are responsible for the most important improvements in door design and are in a position to *design and build any kind of an upward-acting door for any kind of an opening*. They have built a world wide recognition and reputation for satisfaction and reliability permitting you to place your door or closure problem in their hands, without exhaustive study and with the assurance that they will recommend the door that will give maximum efficiency and unequalled economy, both in operation and maintenance.

The KINNEAR MANUFACTURING COMPANY

820-870 FIELDS AVENUE, COLUMBUS, OHIO

COLUMBUS, OHIO

FACTORIES

SAN FRANCISCO, CALIFORNIA

BRANCH OFFICES

New York, N. Y. 30 Rockefeller Plaza—R.C.A. Bldg.

Boston, Mass. 6 Jersey Street

Philadelphia, Pa. 1321 Arch Street

Cincinnati, Ohio. 2335 Reading Road

Chicago, Ill. 1919 Randolph—Wells Bldg.

Detroit, Mich. 7710 Woodward Ave.

Baltimore, Md. 210 Fidelity Bldg.

San Francisco, Cal. 361 Brannan St.

Washington, D. C. 410 Bond Bldg.

New Orleans, La. 529 Hibernia

Bank Bldg.

Pittsburgh, Pa. 1822 Oliver Bldg.

Cleveland, Ohio. 7704 Carnegie Ave.

Agents in Principal Cities



COMPLETE DOOR SERVICE

THE ORIGINATOR OF THE INTERLOCKING SLAT DOOR

KINNEAR
ROLLING DOORS

Bulletin No. 23

A Complete Door Service

KINNEAR ORGANIZATION ASSUMES COMPLETE RESPONSIBILITY

NATION-WIDE SERVICE ORGANIZATION

Branch offices and sales representatives, trained and experienced in door engineering, strategically located throughout the United States and many foreign countries. Anxious to cooperate and assist you in the solution of door problems.

YOUR SPECIAL PROBLEM KINNEAR'S EVERY DAY JOB

A practical research staff of experienced door engineers and clever designers are ready to study your opening problem to determine your exact requirements and to submit recommendations. Consequently, if given the opportunity to work with the Architect and Engineer during the designing period of the job, it is frequently possible to conceal all operating mechanisms of the door in the building structure.

EVERY DOOR A SPECIAL DOOR

Though Kinnear Doors are built in a number of standard types, as described in the following pages, for old or new buildings, every door is especially built or assembled for your job. After type has been selected or design approved, every door is carefully assembled in the largest and best equipped plant in the industry by competent and experienced door mechanics.

ERECTION SERVICE BY TRAINED WORKMEN

The greatest benefits of a good door can be received only through proper erection and adjustment. Kinnear trained erection crews are available to take the responsibility of making speedy and proper installation at the same time cooperating in complying with the building procedure plan.

PERMANENTLY AVAILABLE REPLACEMENT SERVICE AFTER INSTALLATION NO ORPHANS

Kinnear keeps records and patterns of every door sold in fireproof vaults. In case of accidental damage, duplicate parts can be promptly supplied. Replacements can be easily and economically made.

Nation-wide Kinnear Service will always be found as close as your telephone and as interested in servicing present installations as in selling new units.

KINNEAR REPUTATION YOUR PROTECTION

In addition to economical installation and numerous operating economies, the initial cost of Kinnear Doors is generally the last cost for many years. Inherently durable they give long uninterrupted efficient service. Doors now in excellent operating condition after twenty-five to thirty years of daily service give mute evidence of perfection of design, reliability of manufacture and satisfaction to the owner.

THE **9** MAJOR
REQUIREMENTS
WITH COMPLETE
DOOR SERVICE

+

UPWARD-OPENING DOORS

FOR THE ARCHITECT . . . THE CONTRACTOR . . . *and* THE OWNER

WHAT KINNEAR MEANS TO THE ARCHITECT

As every rolling door is factory assembled and not a stock item, Kinnear engineers cooperate with design service vital to the architect. Every door has operating efficiency and economy, built in with compactness, safety and simplicity and high quality. The long service records of Kinnear Doors provide a reputation sufficiently reliable to permit him to readily specify Kinnear without exhaustive study. Your special problems are being solved every day by Kinnear.

WHAT KINNEAR MEANS TO THE CONTRACTOR

Quick and accurate estimates, accurate designs and working drawings, entire co-operation of a trained construction crew at the time of installation in complying with the building procedure plan, are a few of the reasons Kinnear Doors have won such favor with Contractors. By being relieved of the responsibility of speedy and proper installation they have learned that by accepting the Kinnear bid they are money ahead . . . and protect their reputation for delivery quality.

WHAT KINNEAR MEANS TO THE OWNER

In addition to the numerous operating economies Kinnear Doors are inherently durable. They give years of uninterrupted, efficient service. This is evidenced by hundreds of doors that are still in daily service, after more than 30 years of hard usage. For a sound investment, the performance of Kinnear Doors, coupled with Kinnear's permanently available replacement service for cases of accidental damage, cannot be overlooked.



A partial view of Kinnear's extensive designing department



Showing Kinnear's trained erection crew at work

INDEX

	PAGE		PAGE
STEEL ROLLING SERVICE DOORS	6-13	METAL ROLLING GRILLES	23-24
ELECTRIC POWER OPERATORS	14-16	RoL-TOP DOORS (WOOD OR STEEL)	25-30
(also see RoL-TOP Motor Operator—Page 31)		RoL-TOP MOTOR OPERATORS	31
STEEL ROLLING FIRE DOORS AND		BIFOLDING DOORS (WOOD OR STEEL)	32
WINDOW SHUTTERS	17-22	SPECIAL UPWARD-ACTING DOORS	33-35

Kinnear presents in the following pages certain standard types of doors which are indexed as to type, to meet repeated requirements and use. However, since these doors are specially assembled from your specifications, every job becomes a special job for Kinnear. If your requirements are unusual call in the nearest Kinnear Engineer. Many variations and uses of these doors are known to Kinnear Engineers, who are ready to assist you in making designs and installation plans. Your special requirements are our everyday problems!

KINNEAR *Steel Rolling* SERVICE DOORS

NON-LABELED FIRE REPELLENT DOOR FOR PROTECTION AGAINST BURGLARY, THEFT *and* WEATHER . . .

Can also be fabricated in
WOOD (for non-corrosive
uses)

**BRONZE, ALUMINUM
and OTHER ALLOYS**

For Department Stores, Warehouses, Garages, Piers, Freight
Stations, Factories, and other types of Industrial, Mercantile
and Monumental Buildings.

THE DOOR THAT PAYS DIVIDENDS

Doors represent an investment that will pay dividends if properly
selected. Kinnear Steel Rolling Service Doors have a greater value in
that they are designed to save money for a long period of time by
greater operating economy, lower cost of maintenance and by lasting
efficiency and durability.

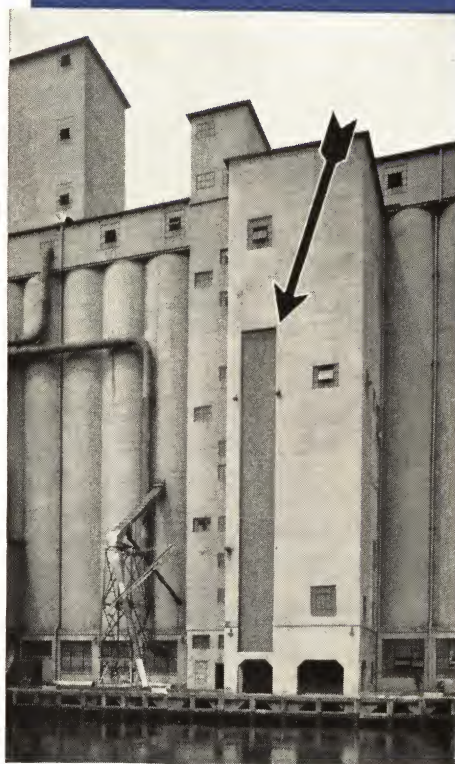
Kinnear Steel Rolling Doors and Shutters are sold under two distinct
classifications, viz.: Service Doors that are designed for openings which
do not require an Underwriters' Label, and where fire insurance is not
a consideration; Automatic Fire Doors (see pages 17 to 22) which are
built for places where the protection of human life and property against
fire is of prime importance. However, the Service Doors described
here by the very nature of their construction are fire repellent and afford
a certain amount of fire protection. They also have the eight other
major door requirements: easy, quick operation; upward-action, thereby
saving space; greater durability; maximum safety; weather guard; neat
appearance; theft proof; and economical installation.

LONG LIFE AT LOW MAINTENANCE COST

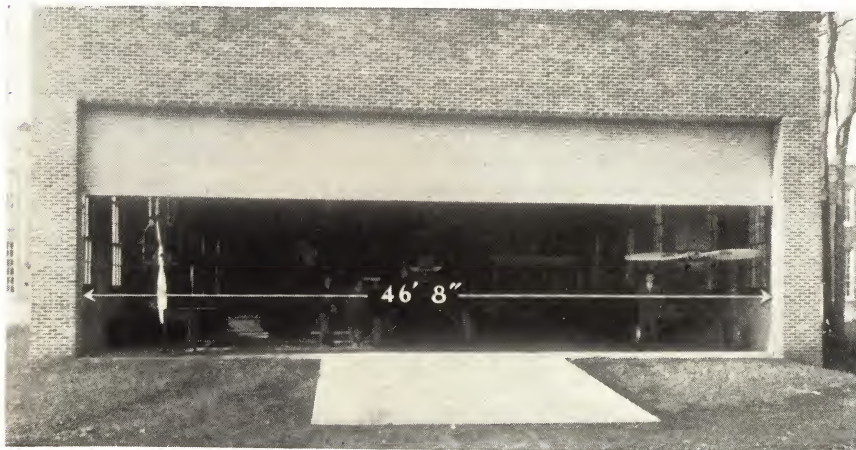
From the very outset everything is planned to provide at lowest cost
a door that will function properly, have long life and minimum mainte-
nance and operating cost. This is accomplished by combining all the
factors of the complete door service: designing skill, the highest quality
of materials and workmanship; tailoring it to meet the individual require-
ments and assembling the door in our plant. Although no doors are
carried in stock, certain standard types of installations can be selected
from this catalog (see pages following). Others perhaps more suited to
your exact needs and not illustrated in this catalog will be recommended
or designed if you write the Kinnear Engineers. Your door is registered,
plans kept in fireproof vaults, making replacement of parts necessary
because of accident, easy to fill.



A large installation which emphasizes the
space economy of Kinnear Rolling Doors.



A single Kinnear Steel Rolling Door 110
feet high installed in a marine tower.



This Kinnear Rolling Door opens the entire side of a building . . . and by means
of perfect counterbalance one man can easily operate it.

TAILORED AT THE FACTORY TO MEET YOUR REQUIREMENTS

The curtain proper is made of open hearth, copper-bearing steel interlocking slats, heavily galvanized by the Kinnear Tite-Cote hot process (also of pure iron, stainless steel, aluminum, bronze and other metals) and equipped with endlocks of suitable material. This curtain is coiled upon a barrel journaled in heavy cast iron or steel plate brackets and travels in steel guides. Helical springs enclosed in the barrel provide counterbalancing. A metal hood covers barrel and coil.

8 STANDARD TYPES

Based on method of installation and operation, Kinnear Steel Rolling Service Doors are offered in eight standard types. The selection of the type to employ is determined by the size of the door, the service required and limitations in clearances and headroom.

The two methods of installation are between-the-jamb and face-of-the-wall. Where space is limited, or appearance in new buildings calls for the door mechanism to be concealed, the between-the-jamb type, which is encased under the lintel, is employed. In old buildings, with ample headroom, the brackets and coil are mounted and encased on the face of the wall. For further installation details, see page 10.

The four methods of operation most commonly employed in Kinnear Doors are: manual push-up by means of handle in bottom bar; mechanically by hand chains working through sprockets and reduction gears; mechanically by hand crank operating on shaft and reduction gearing; and electrically by a power operator, controlled by one or more conveniently located push buttons or other electrical switching arrangement.

While manual operation is used for small doors, mechanical operation is recommended for those over 80 square feet in area. In view of the saving in time, labor and inconvenience afforded by motor control, it is today's most frequently used method of operation. For further details on operating mechanism, see page 12.

SIZES AND LIMITATIONS

Because of the compactness and small amount of clearances required, Kinnear Rolling Doors can be practically adapted to most any doorway or other type of building opening. Also, as every Kinnear Door is especially built for the specific job, they can be constructed in most any size, the primary limitation on maximum size being one of what is possible and practical from an engineering construction standpoint. Since Kinnear copes with the unusual problems every day, before drawing any conclusions on limitations, ask for a special Kinnear recommendation.

KINNEAR SLATS

Kinnear Slats are made in different sizes and weights. The four most commonly used are shown in detail in drawing at right.

SLAT NO. 2—Made in 22-20-18 and 16-gauge open hearth copper-bearing steel, hot galvanized. Depth of crown $\frac{1}{2}$ in. and $1\frac{1}{4}$ in. on centers.

SLAT NO. 4—Used on extremely wide doors, is same as Slat No. 2 except has $\frac{3}{8}$ in. depth of crown and $2\frac{3}{4}$ in. on center and is made in 20-18 and 16 U. S. gauge.

SLAT NO. 10—Made in 20 and 18 gauge. Depth of crown $1\frac{1}{8}$ in. and $3\frac{1}{8}$ in. on center.

SLAT NO. 5—Made in 22 and 20 U. S. gauge. Depth of crown $\frac{1}{2}$ in. and $1\frac{1}{8}$ in. on centers.

Kinnear fabricates a number of other style slats. Details submitted upon request.



A part of the battery of 119 Kinnear Rolling Doors installed on St. John's Terminal, New York City . . . mute evidence of Kinnear capabilities.

DETAIL (Full Size) OF
FOUR STYLES
OF KINNEAR SLATS



KINNEAR CONSTRUCTION

A LOOK UNDER THE HOOD WILL REVEAL 17 REASONS FOR THE LOW MAINTENANCE COST and LONG SERVICE



Kinnear Rolling Doors harmonize with any style of architecture and give a clean-cut appearance to the opening.



above . . . Illustrates how the mechanism of a Kinnear Door can be encased in ornamental hoods to meet individual demands.

below . . . Merchandise on trucks can be placed close to either side of the door without hindering operation.



A Kinnear Steel Rolling Door is a thoroughly developed piece of mechanical equipment.

The engineering skill and quality materials used in its fabrication are responsible for exclusive construction features which give it the lasting efficiency and low cost of maintenance so necessary to a sound investment.

Since so much of the dollar value of a Kinnear Door is hidden under the hood, the discriminating purchaser will find the construction points listed below of interest. They permit a visual appraisal of the superior merits that make a Kinnear Door ultimately the lowest cost door to buy.

1 • BRACKETS

Uniformly cast in special molds. All surfaces are smooth and even. Made of steel plate or gray iron of uniform texture with high-test value and suitably proportioned with large factor of safety. Bracket mouth and stops are at an established distance between center and back of bracket, thus providing a throat which permits smooth operation without friction and eliminates the excessive drag of curtain over the stops.

Bearings of large proportions are provided for barrel spindles.

2 • HOODS

Neatly formed hot galvanized sheet steel hoods to fit contour of brackets suitably reinforced with beads or flanges to prevent deflection.

3 • CURTAIN

Composed of interlocking slats of hot galvanized copper-bearing steel. For slat details see No. 15.

4 • SPRING BARREL

Each door is provided with a heavy steel barrel of sufficient diameter and thickness to avoid deflection in excess of .03 inches per lineal foot of barrel. This barrel serves a three-fold purpose, viz.:

1. Encases the counterbalancing mechanism.
2. Serves as the load-carrying beam.
3. Provides an axis around which curtain coils.

5 • COUNTERBALANCE

Oil-tempered helical springs wound from especially heat-treated steel and tempered with oil, providing a permanent means of counterbalance. Each of these springs is tailored, tested for each job and all springs for each door anchored to same tension rod.

6 • RINGS

Rings of malleable iron of involute shape, designed to coil the curtain with an uniformly increasing diameter. Size provides an initial diameter sufficient to insure uniform and constant counterbalance for all points of the door travel.

7 • SHAFTING OR TENSION ROD

Of sufficient size to carry the torsional load of the spring counterbalance and to be of cold rolled polished steel in order to eliminate friction in all bearings.

8 • BARREL PLUGS

Heavy cast iron plugs machined to fit perfectly into the ends of barrel and having Kinnear special design for holding the ends of the spring and eliminating the usual excessive strain at the spring ends.

9 • REDUCTION GEARING

Suitable reduction gearing cast with teeth machine molded from machine-finished patterns. Designed with a high factor of safety and reduction ratio individually suited for the door operated.

10 • CHAIN GUARD

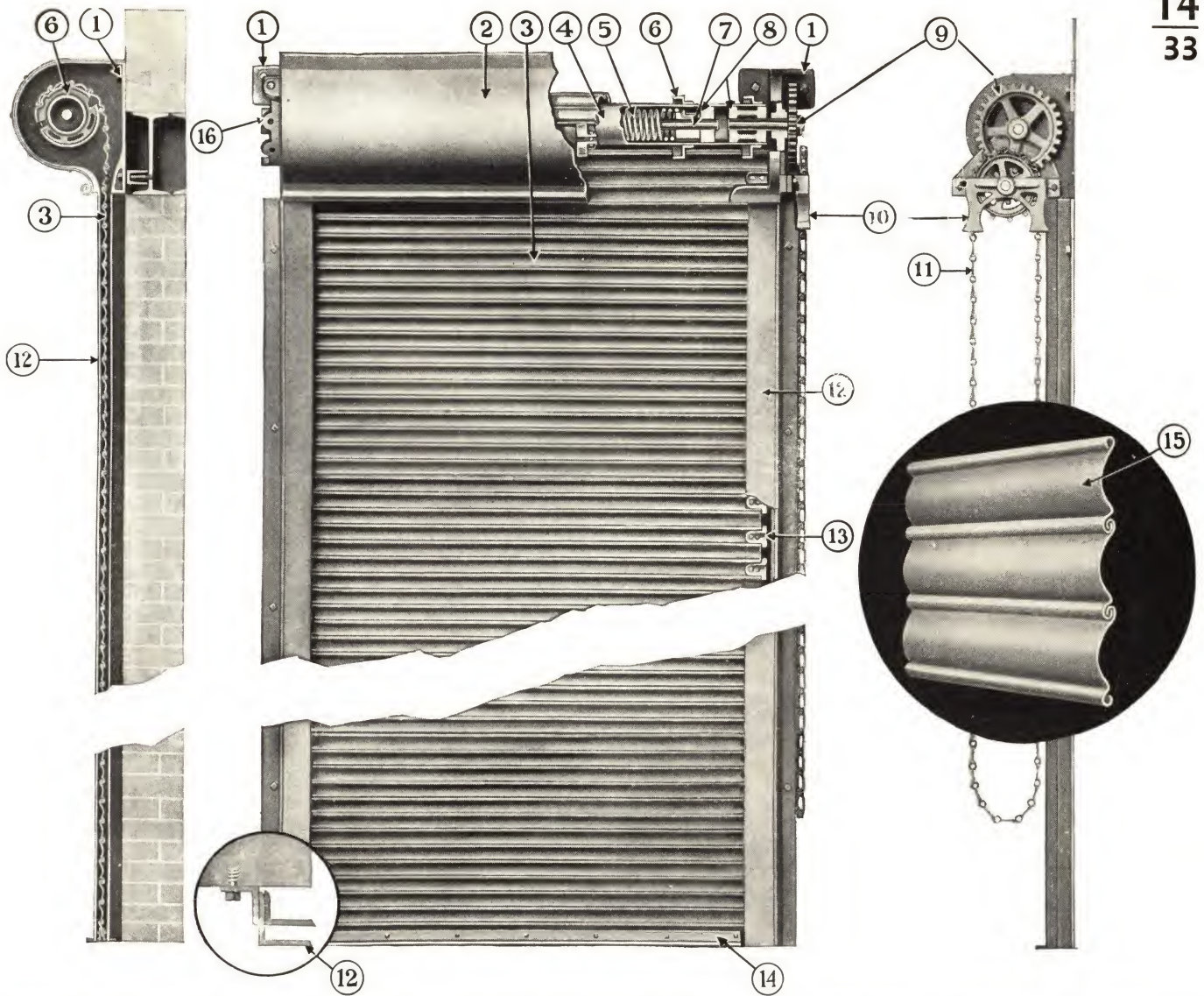
Sprocket wheel provided with a guard, especially designed to properly guide and prevent hand chain from leaving wheel.

11 • OPERATING CHAIN

Heavily galvanized, and of design and strength to prevent stretching and to provide a comfortable hand grip.

12 • GUIDES

Fabricated from structural steel angles. The Kinnear Guide is designed with



groove depths varying from 2 to 8 inches, depending upon the width of the door. This guide is especially adaptable for doors exposed to heavy wind pressure and is packed out from the face of the wall in order to accommodate the especially designed throat of the bracket.

13 • END LOCKS

Made of malleable iron and customarily placed on alternate slats. Where required, they are placed on every slat. They retain slats in place, protect them against rubbing in the guides and maintain the curtain in alignment.

14 • BOTTOM BAR

Reinforces the curtain against wind pressure and is made with two angles of equal weight in order that they balance and hang freely on the curtain to eliminate binding friction in the guides. Provides contact for the curtain against the sill when the door is closed and against the stops on the bracket when the door is open.

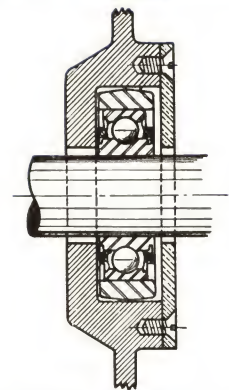
15 • SLATS

Made of different sizes to accommodate the width of the door. Slats are designed to have a high crown to provide rigidity. The hinging centers are so arranged to give free action in the curtain and to properly nest when coiled on the barrel. Standard slats are rolled from copper-bearing steel and hot galvanized. The gauge of metal used in the slats depends upon the width of the opening. In every instance the size and gauge of slat is selected to best meet customers' requirements.

Slats can be furnished in stainless steel, aluminum, bronze and copper.

16 • ADJUSTMENT WHEEL

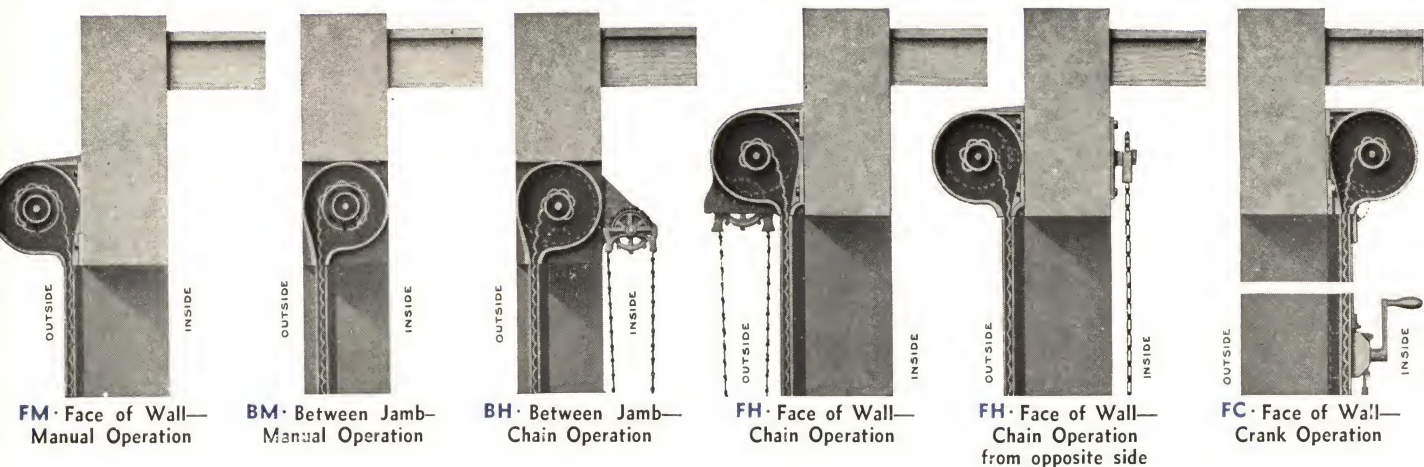
Mounted on the outside of the bracket. Easily accessible. Kinnear counter-balance is so designed that the initial tension can be increased or decreased by use of this wheel, which is mounted on the tension rod. It is of heavy, cast iron construction and locked to the bracket after adjustments are made.



17 • HIGH QUALITY BEARINGS—Standard Kinnear Equipment

To facilitate long life and smooth, easy operation, bearings placed at both ends of the barrel which supports the curtain are self-lubricating graphite bearings or grease-sealed precision ball bearings, depending upon requirements.

TYPES OF INSTALLATIONS *and* CLEARANCES



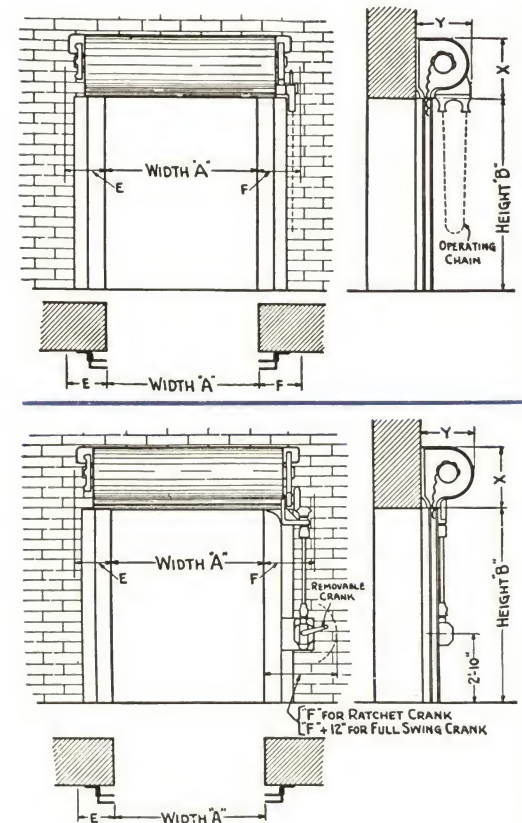
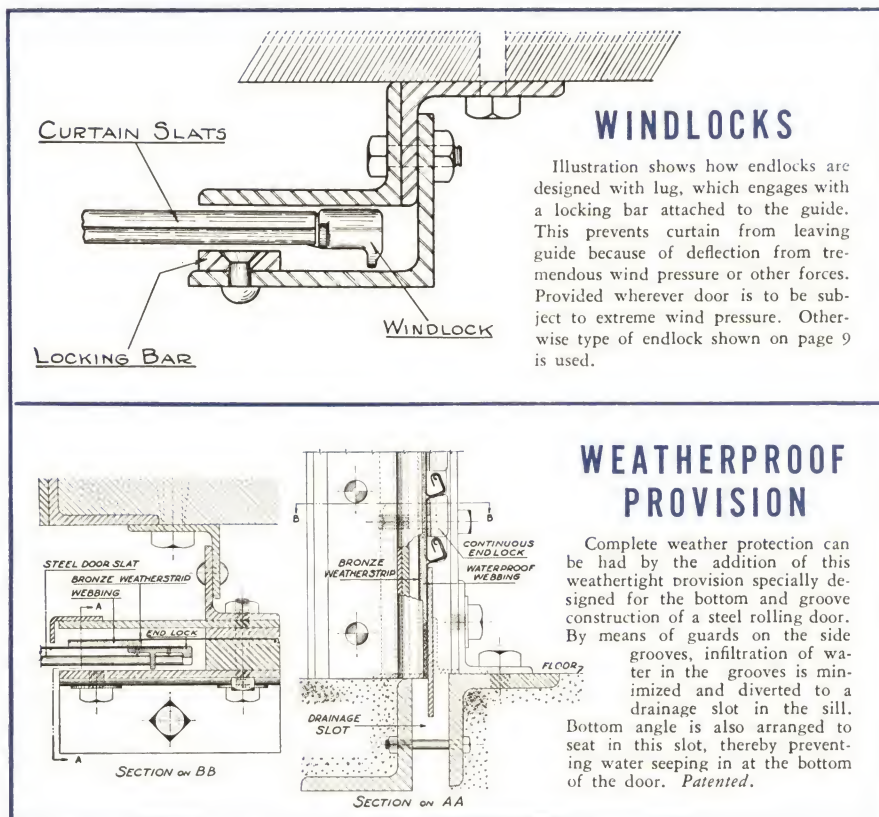
METHODS OF INSTALLATION

The six installations illustrated above are the more common normally controlled methods employed. However, as each door is especially assembled for your closure problem, it is easy to call in, at no obligation, a member of the Kinnear Engineering staff to cooperate with the Architect and Engineer during the designing period of the job. Often it is possible to make valuable suggestions leading to the concealing of all working parts of the door making the curtain when in the closed position, the only visible part.

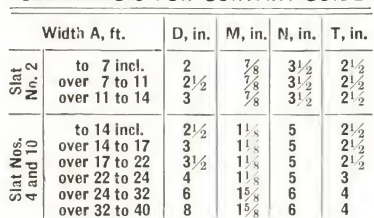
When the coil is mounted on the face of the wall, as in the case of old buildings and where headroom is ample, the brackets and coil are entirely above the bottom of the lintel and the edges of the guides are flush with the face of the opening jambs. Where headroom is limited, the door is then mounted in the opening, in which case the brackets and coil are located on the jambs or in reveals provided in the jambs.

NOTE: In reading the clearance dimension tables, for doors of intermediate sizes use clearance dimensions listed for next larger width or height.

Slat No. 2 used on doors of sizes listed above heavy line. Slat No. 4 and 10 used on doors of sizes listed below heavy line. For slat specifications, see construction detail on page 7.



CLEARANCES FOR CURTAIN GUIDE



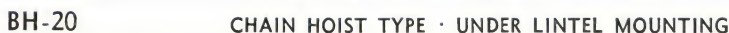
Note: Schedule above gives guide clearances required and slats required for doors of various widths. For slat detail, see page 7.



Height B, ft.	6		7		8		9		10		11		12				
Width A, ft.	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	
3, 4	14	11	34	15	13	34	15	13	34	17	15	34	18	16	34	19	17
	5	14	11	34	15	13	34	15	13	34	17	15	34	18	16	34	20
	6	14	11	34	15	13	34	15	13	34	17	15	34	18	16	34	21
	7	14	11	34	15	13	34	15	13	34	17	15	34	18	16	34	22
	8	14	11	34	15	13	34	15	13	34	17	15	34	18	16	34	23
9, 10, 11	14	11	35	17	14	35	18	16	35	19	17	35	20	18	35	21	19
	12	14	11	35	17	14	35	18	16	35	19	17	35	20	18	35	22
	13	14	11	35	17	14	35	18	16	35	19	17	35	20	18	35	23
	14	14	11	35	17	14	35	18	16	35	19	17	35	20	18	35	24

Note: Schedule above gives guide clearances required and slats required for doors of various widths. For slat detail, see page 7.

NOTE: For doors of intermediate sizes, use clearance dimensions listed in either table for next larger width or height.
Slat No. 2 used on doors of sizes listed above heavy line. Slat Nos. 4 and 10 used on doors of sizes listed below heavy line.



Height B, ft.	8				9				10				11				12				13				14				15				16			
Width A, ft.	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F				
6, 7 8, 9, 10, 11 12 13	13	10	4	5	14	11	4	5	14	11	4	5	14	12	4	5	16	13	4	5	17	14	4	5	17	14	4	5	17	15	4	5				
	13	10	5	6	14	11	5	6	14	11	5	6	16	12	5	6	16	13	5	6	17	14	5	6	17	14	5	6	17	15	5	6				
	12	11	5	6	14	11	5	6	14	11	5	6	16	12	5	6	16	13	5	6	17	14	5	6	17	14	5	6	17	15	5	6				
	13	14	12	5	6	16	12	5	6	16	12	5	6	16	13	5	6	16	13	5	6	17	14	6	8	17	15	6	8	18	15	6	8			
14 15 16 17, 18 19, 20 21, 22 23	14	16	13	5	6	16	14	5	6	18	15	5	7	19	16	5	7	19	16	5	7	19	16	5	7	19	17	5	7	20	18	5	7			
	15	16	13	6	8	17	14	6	8	18	15	6	8	19	16	6	8	19	16	6	8	19	16	6	8	19	17	6	8	20	18	6	8			
	16	16	14	5	6	17	14	5	6	18	15	6	8	19	16	6	8	19	16	6	8	19	16	6	8	19	17	6	8	22	18	6	8			
	17, 18	17	14	6	8	18	15	6	8	18	15	6	8	19	16	6	8	19	16	6	8	19	16	6	8	19	17	6	8	22	18	6	8			
	19, 20	17	14	6	8	18	15	6	8	18	15	6	8	19	16	6	8	22	19	6	8	22	19	6	8	22	19	6	8	22	19	6	8			
	21, 22	17	15	6	8	18	15	6	8	18	15	6	8	20	18	6	8	22	19	6	8	22	19	6	8	23	20	6	8							
	23	17	15	7	9	18	15	7	9	18	15	7	9	20	18	7	9	22	19	7	9	22	19	7	9	23	20	7	9							

FH-20 CHAIN HOIST OPERATION · FACE MOUNTING

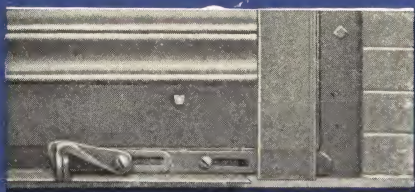
[illegible]

FC-20 CRANK OPERATION · FACE MOUNTING

[illegible]

DIMENSIONS ABOVE ARE FOR GENERAL REFERENCE ONLY AND NOT FOR CONSTRUCTION PURPOSES

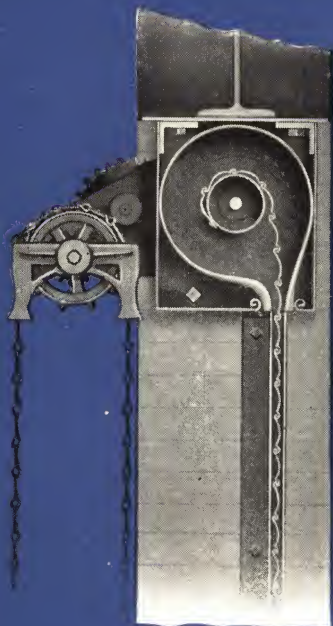
OPERATORS, LOCKS, WICKETS *and* MOVABLE POSTS FOR MANUAL, CHAIN, CRANK *or* MOTOR OPERATION



Locking arrangement on manually operated doors.



Operating handle in bottom bar



above . . . Gearing arrangement for chain operation.

right . . . Gear box and lock provision on crank operated doors.

MANUAL OPERATION

For smaller doors or shutters mounted on face of wall or on the jambs or in reveals provided in jambs up to 12 feet high or wide with maximum area of 100 sq. ft., convenient lifting handle may be provided on the bottom plate as shown in picture to the left. Locking of manual operated doors is accomplished by padlocking the slide bolt (see picture to left) which contacts a stop in the guide, to the clip welded on the bottom plate. This can be arranged for locking on either or both sides of the door.

HOIST OPERATION

For large doors, hand chain, sprocket and gear may be provided with maximum pull of 35 pounds. Can be arranged for operation from either side of wall. For locking against operation, a keeper that is applied to the jamb, to which operating chains can be padlocked, is furnished.

CRANK SHAFT OPERATION

Where preferred, doors may be operated by hand crank, shafting and gear on door side of wall, both sides of wall or only on side opposite. Crank is detachable to prevent door from being operated. However, locking is accomplished by placing a padlock through one of the holes on the wheel placed above the crank box (see picture below). A lug on the crank box casting engages with the lock and prevents the shaft being turned.

MOTOR OPERATION

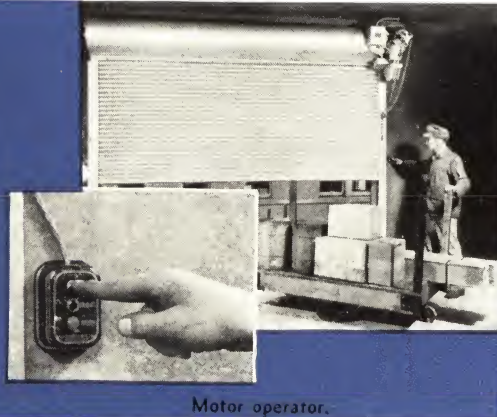
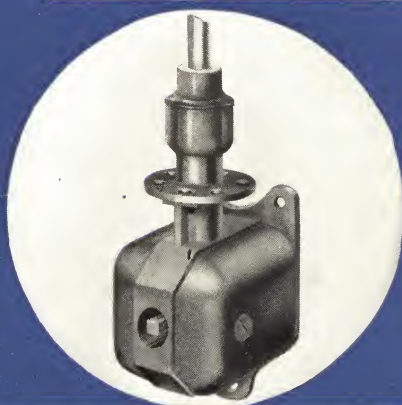
Motor operation is highly recommended as the most economical and convenient method of operating large Kinnear Rolling Service Doors . . . the saving in labor, time and heat alone will pay substantial dividends on the initial investment. For complete information see pages 14 to 16.

INTERMEDIATE MOVABLE POST

Very wide openings can frequently be more conveniently closed by a number of doors than by a single large one, using between the doors movable posts, illustrated on page 13, with the edges constructed to form double grooves. Hinged to the bracket, these posts are swung up out of the way when the doors are open. Ordinarily, the posts swing perpendicularly to the plane of the curtain but can be arranged to swing obliquely; slide to the side of the opening by a trolley on a horizontal overhead track; or other methods suited to the individual needs. Details on special arrangements will be submitted upon request.

WICKET OR PASS DOOR

The wicket or pass door (see illustration on page 13) provides an entrance without raising the major door. It is an ideal arrangement where there is no access to the building other than by the main opening. The wicket is built of an angle frame covered with a steel plate and equipped with heavy strap hinges and massive latch and lock. It is hung on a frame hinged to the side guide. The frame is constructed of angles forming grooves in which the rolling door travels. When the rolling door is raised, the wicket door and frame are swung back against the wall.



Motor operator.

Architects' Specifications

FOR KINNEAR STEEL ROLLING DOORS AND OPERATORS

STEEL ROLLING SERVICE DOORS

OPENINGS—Shall be equipped with Kinnear Steel Rolling Doors.

CURTAIN—Shall be of interlocking slats, rolled not drawn, formed in easy curves without sharp bends, from open hearth steel gauge (*see note below*). Slats to be of section sufficiently large to give curtain strength to safely resist a wind load of 20 pounds per square foot. For doors exceeding 25 feet in clear width or 15 feet clear height if door exceeds 22 feet in height, curtain shall be provided with lugs as windlocks to engage bars in guides and to lock the curtain against wind pressure. Each alternate slat shall be fitted with malleable endlocks $\frac{3}{8}$ inch thick. Bottom bar to be two angles placed back to back.

Note. The gauge of the slats to be specified according to chart:

Height		8' 0"	12' 0"	28' 0"
Width	33' 25' 20' 13' 6"	22 U. S. Gauge		25' 18' 12' 6"
		20 U. S. Gauge		
		18 U. S. Gauge		
		18 U. S. Gauge (with windlocks)		

GALVANIZING—To be hot process, free from blisters and other imperfections, with a high grade pure zinc coating.

COUNTERBALANCE—Curtain to be coiled on a pipe of size sufficient to carry the door load with a deflection not to exceed .03 inches per foot of opening width, and to be evenly balanced by helical springs contained in pipe.

COIL BRACKETS—To be of high grade gray iron or steel plate designed to house ends of the coil.

HOOD—The coil to be housed with a sheet metal hood No. 22 U. S. gauge for doors over 20 feet wide and No. 24 U. S. gauge for narrower sizes.

GUIDES—Built of structural steel to form a slot of sufficient depth to retain curtain in guides against heavy wind pressure, and for doors requiring windlocks, guides must be provided with anchors for windlocks.

ALTERNATES FOR STANDARD SERVICE OR MOTOR OPERATION

Standard Service

OPERATION—TO BE—(A) Manually by means of handles on bottom bar. (B) Hand chain, sprocket and gear; maximum allowed pull 35 pounds. (C) Crank, shafting and gear; maximum exertion on crank 20 pounds.

GEAR—To be of best grade gray iron, cast teeth machine-moulded from machine-cut patterns, except machine-cut teeth on motor operated doors.

Motor Operation

OPERATION—Doors to be operated by means of an electric motor. The control circuit shall be closed by means of push buttons and automatic limit switches will break circuit at termination of travel. Door to be stopped at intermediate points by stop button from where it can then be operated in either direction.

MOTOR—To be high starting torque elevator or hoist motor, raising or lowering curtain at approximately .67 feet per second.

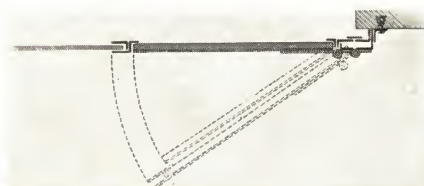
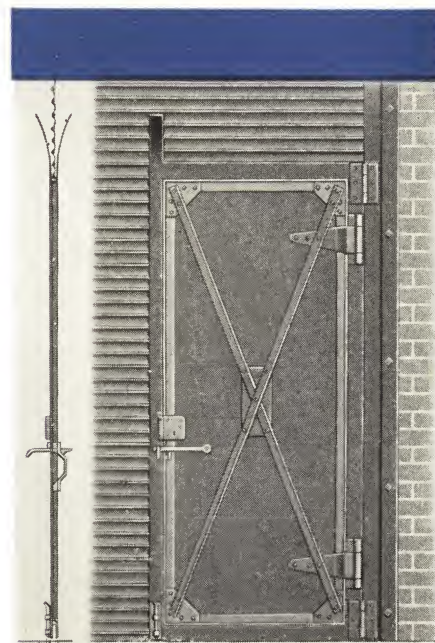
REDUCTION GEAR—Of the power unit shall be machine-cut gear completely housed and running in oil bath.

EMERGENCY OPERATION—A control for automatically engaging a sprocket and chain and releasing the brake, shall be operable from the floor. A device which shall automatically prevent the motor from operating until emergency sprocket is disengaged shall be provided. Emergency operation shall not affect timing of limit switch.

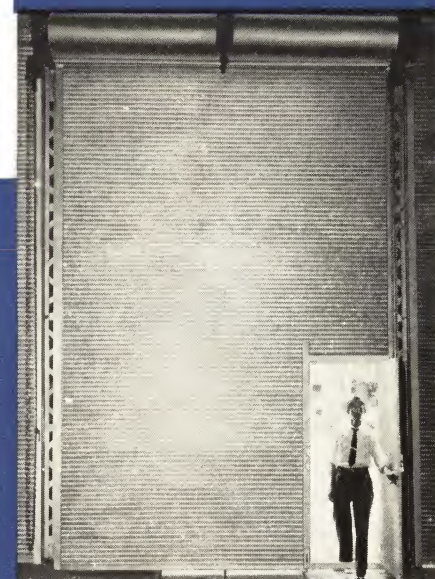
CONTROL SWITCHES—Shall consist of 3 push-button switch "open," "close" and "stop"; remote control magnetic enclosed switch panel for reversing motors, and automatic limit switch.

ERECTION—All doors shall be erected by the manufacturer or his authorized representative and shall be guaranteed for a period of one year from the date of completion of erection that any part defective in material or workmanship will be replaced without charge to the customer.

WIRING—Wires, wiring, conduit, fuses and service switches are not furnished or erected by Rolling Door Contractor, but are to be installed with the control switches by others, according to diagrams furnished by door contractor.

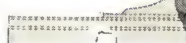


above and below illustrates how the wicket or pass door functions and is incorporated in a Kinnear Steel Rolling Door.

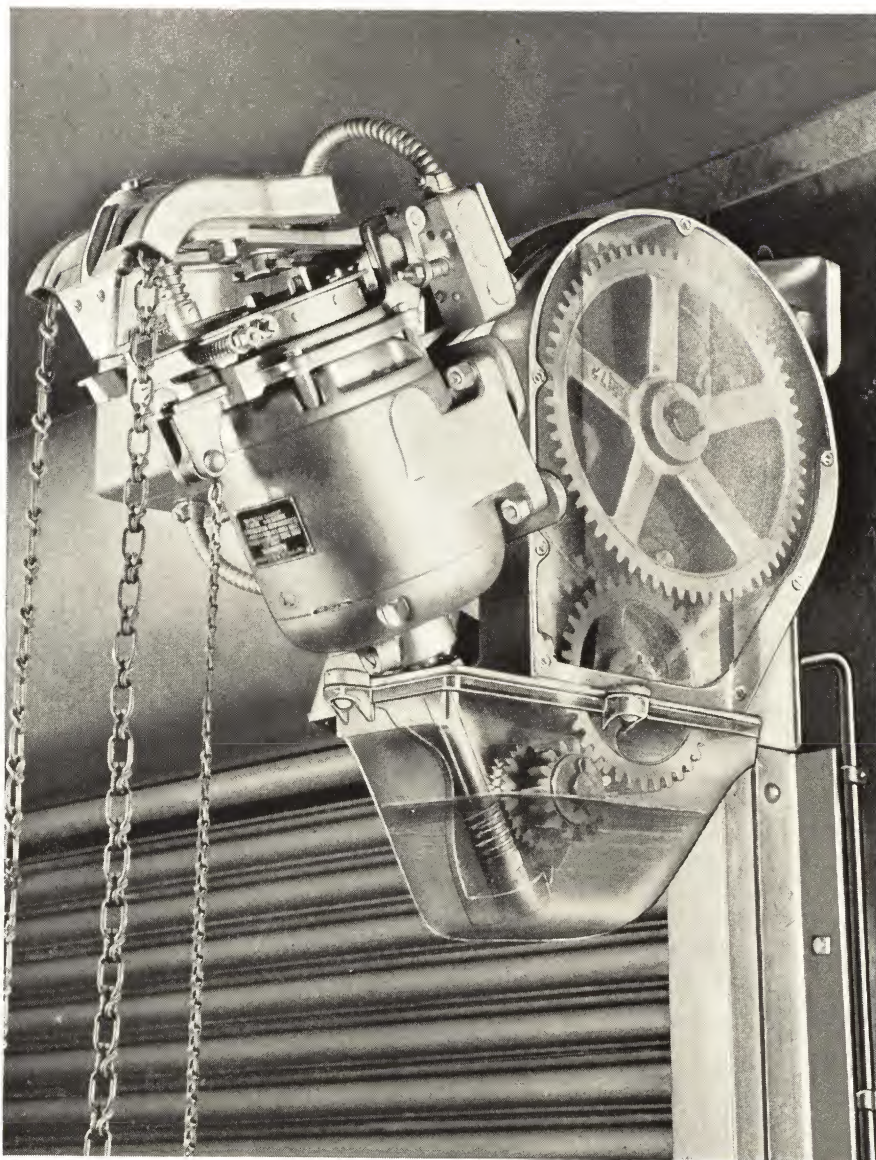


Shows how the movable center post, when in position, forms guides in which door operates. Dotted line shows how it is raised out of the way when entire width of the opening must be cleared.

This further illustrates the advisability of calling in Kinnear when a special problem is involved. In the past, they have had occasion to design innumerable special auxiliary devices.



KINNEAR *Power Units and Safety Device*



Type "A" Application—Bracket Mounting

Rolling Doors offer their greatest economy and convenience when equipped with Kinnear Power Units—compact, rugged and dependable electric Motor Operators individually adapted to any rolling door. Controlled by the desired number of conveniently located push-button control stations, Kinnear Motor Operated Doors are quickly opened or closed . . . the saving in labor, time and heat paying substantial dividends on the initial investment. Because time saved is money made! Though it is the most practical to install the complete equipment, door and operator, at one time, this power equipment is so designed that existing manually operated Kinnear Doors can be economically motorized at any time.

OPERATION

Operation of the door is accomplished by a momentary contact of the "OPEN" or "CLOSE" button on the operating switch. At the termination of the door travel, a limit switch automatically sets the brake and stops the motor. The door can be stopped at any intermediate position by pushing the "STOP" button, from which position it can be either opened or closed.

As will be noted in the following pages, Kinnear Power Units embody many improved features not to be found in any other equipment on the market . . . One of prime importance is the Emergency Manual Operation fully described in the following paragraph.

EMERGENCY MANUAL OPERATION

Interruption of current is always a possibility. But such interruptions are neither annoying nor expensive with Kinnear Motor Operators.

Emergency manual operation is accomplished through auxiliary chains, extending from the power unit to a point easily accessible from the floor level. By pulling down on these chains, the emergency chain operator is engaged, an electrical interlock actuated, which prevents electrical operation while the chain operator is engaged, and the brake is automatically released. By pulling down on the small release chain, the door and power units are easily returned to normal electrical operation.

This method is simple, positive, and eliminates entirely the element of danger present in units not equipped with this feature.

IMPROVED FEATURES

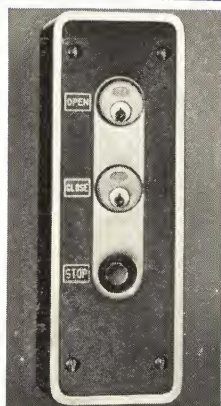
1 • Integral Construction . . . With integral, unit construction, there are fewer moving parts and no misalignment, which insures greater efficiency, quieter operation and easier erection.

CONTROL STATIONS

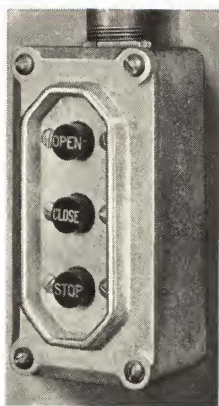
While practically any type of automatic control switch can be applied to Kinnear Motor Operated Doors, the most popular type control is the standard three-button station, which is illustrated at the right. It is a rugged, heavy-duty control, equipped with three push buttons, labeled, "OPEN," "CLOSE," and "STOP."

Where it is desired that only authorized persons operate the door, a control station having the open and close button key-operated can be supplied. This is illustrated at the left.

As Kinnear can supply other types of controls, consult them when other equipment is desired.



Key Operated



Push Button

QUICK, POSITIVE, RELIABLE . . . with FINGER TIP CONTROL

Saves Labor, Time and Heat on New or Existing Rolling Doors

2 • High Quality Gears . . . Worm gears are of chilled nickel bronze, while worms are of polished and hardened nickel steel. All gears are machine cut. Where chain drives are employed, they are high grade roller chains.

3 • Quality Bearings . . . Good bearings are liberally used in this unit; precision ball bearings; bronze bushings with lubrication facilities and grease seals; and bronze and graphite oilless bearings.

4 • Adequate Oiling . . . Large sealed oil reservoirs insure adequate oiling for parts receiving the greatest wear, with a minimum of attention.

5 • Special Motor . . . Motor is especially designed with torque outputs matched to door load requirements.

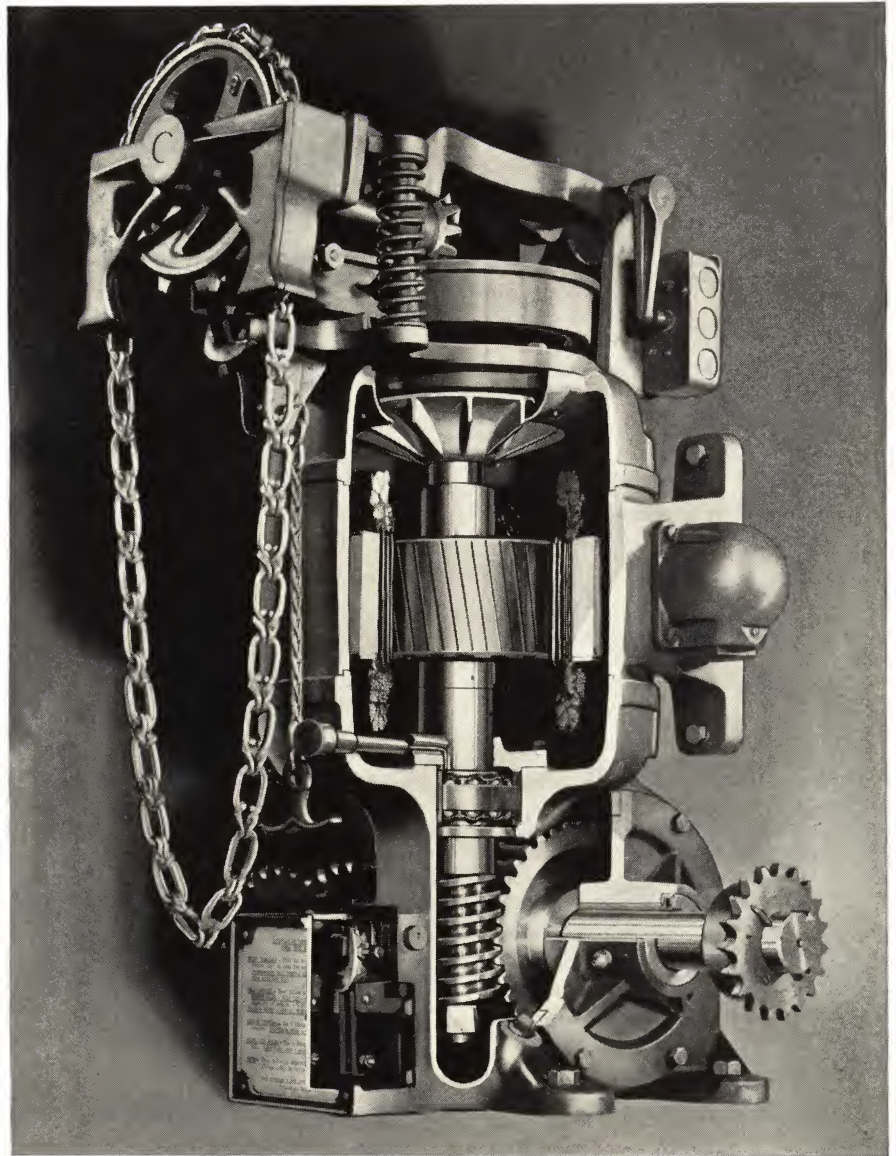
6 • Especially Engineered . . . Every Kinnear Unit is especially designed and built to suit the particular door it is to operate.

7 • Backed By Experience . . . The Kinnear Unit is based on Kinnear's years of experience in pioneering and specializing in the field of UPWARD ACTING Doors.

TYPES OF APPLICATIONS

Type A or Bracket Mounting—A rugged, neat, compact unit which is available for any current characteristics. It is the achievement of thorough designing and high quality. All mechanism—motor, reduction gearing, magnetic brake, limit switch, emergency manual operation and reversing panels are arranged to require remarkably little side clearance. It takes practically no more room than a manually operated door. Built in two sizes only. The smaller with special $\frac{1}{2}$ H. P. motor is limited to doors not exceeding 15 ft. high, or 12 ft. 6 in. wide and having maximum area of approximately 140 sq. ft. of No. 22 U. S. gauge curtain. The larger with 1 H. P. is limited to doors not exceeding 18 ft. high or 20 ft. wide having maximum area of practically 210 sq. ft. No. 20 U. S. gauge curtains.

Type B or Wall Mounting Application has been made remarkably flexible. Experiences have already proved that it lends itself to 57 different variations of mounting. The three details given on page 16 are the most typical applications and are shown for illustrative purposes only. It is recommended that a Kinnear Engineer be consulted prior to determining whether or not the particular opening has sufficient clearances available for this type of installation of the Kinnear Motor Operator. With Kinnear's nationwide list of users, it is very possible that you can be cited to an actual installation comparable to your own, in your immediate vicinity.



Type "B" Application—Wall Mounting

NEW "SAFETY DEVICE"

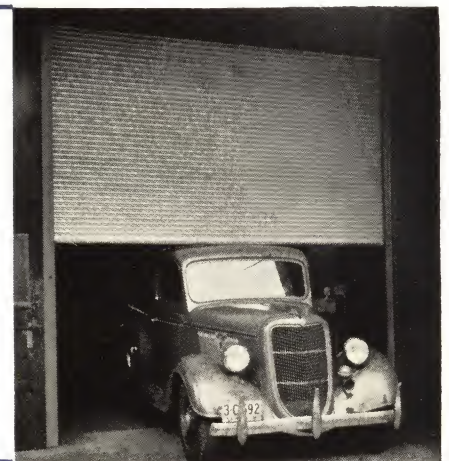
STOPS AUTOMATICALLY — REVERSES OPERATION

Here's another outstanding Kinnear development which adds materially to the safety of Motor Operated Doors, particularly when they are arranged for operation by means of remote control stations. It may be applied to any Kinnear Door and practically eliminates the possibility of injury to persons or cars in case the door is carelessly closed by attendants who fail to note, or cannot see, whether or not the opening is completely cleared when they push the control button.

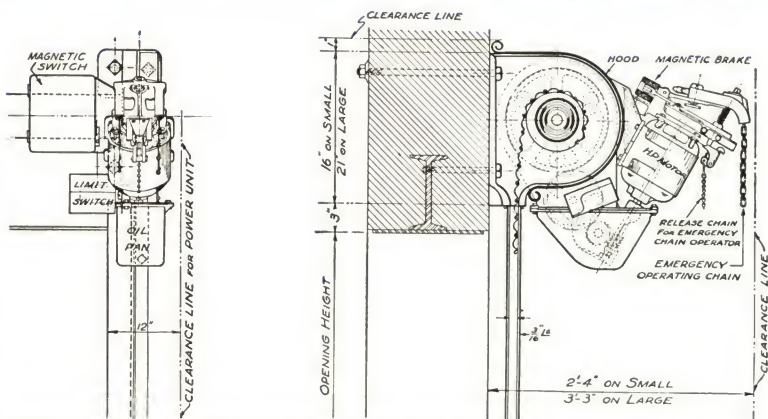
A compressible, air-containing weatherstrip is placed along the entire length of the bottom edge of the door. In case the door contacts an obstruction upon closing, it compresses this weatherstrip, thereby forcing air through an impulse switch which causes the door to either stop its closing travel, or immediately revert to its fully open position, depending upon the method of connection to the door control circuit. The slightest pressure on the weatherstrip insures positive action.

Right:

Illustrates how the door is stopped automatically and without injury to the car when a Kinnear Motor Operated Door is equipped with the Kinnear Safety Device.



APPLICATIONS *and* MOUNTING DETAILS of POWER UNITS



NOTE: Clearances given are for estimating purposes only. They are only approximate, varying somewhat in each case, because every Kinnear Motor Operated Door is especially engineered for the individual requirement.

SUGGESTED SPECIFICATIONS

Door will be operated by electric motor of a high-starting torque type which will raise or lower the curtain at approximately .67 feet per second. The control circuit shall be closed by means of push buttons, and automatic limit switches shall break the circuit at termination of travel. Door to be stopped at intermediate points by "STOP" button from which it can be operated in either direction. Operator must be provided with an emergency control for automatically engaging a sprocket and chain and releasing a brake so that the door can be operable from hand chains accessible from the floor level. This control must embody a device which will automatically prevent the motor from operating while emergency manual operator is engaged. Emergency operation will not affect the timing of the limit switch.

All doors should be erected by manufacturer or authorized representative, and shall be guaranteed for a period of one year from the date of completion of erection that any part defective in material or workmanship will be replaced without charge to the customer. Door contractor will provide wiring diagrams but will not furnish or install wires, wiring, conduit, fuses or service switches.

FLEXIBLE

As every Kinnear Power Unit is especially designed and built to exactly suit the particular door it is to operate, experience has already proved that they lend themselves to 57 different variations of mounting.

This unusual flexibility has been developed only by the vast knowledge stored up from years of experience in doors and door control, and accurate and ingenious designing.

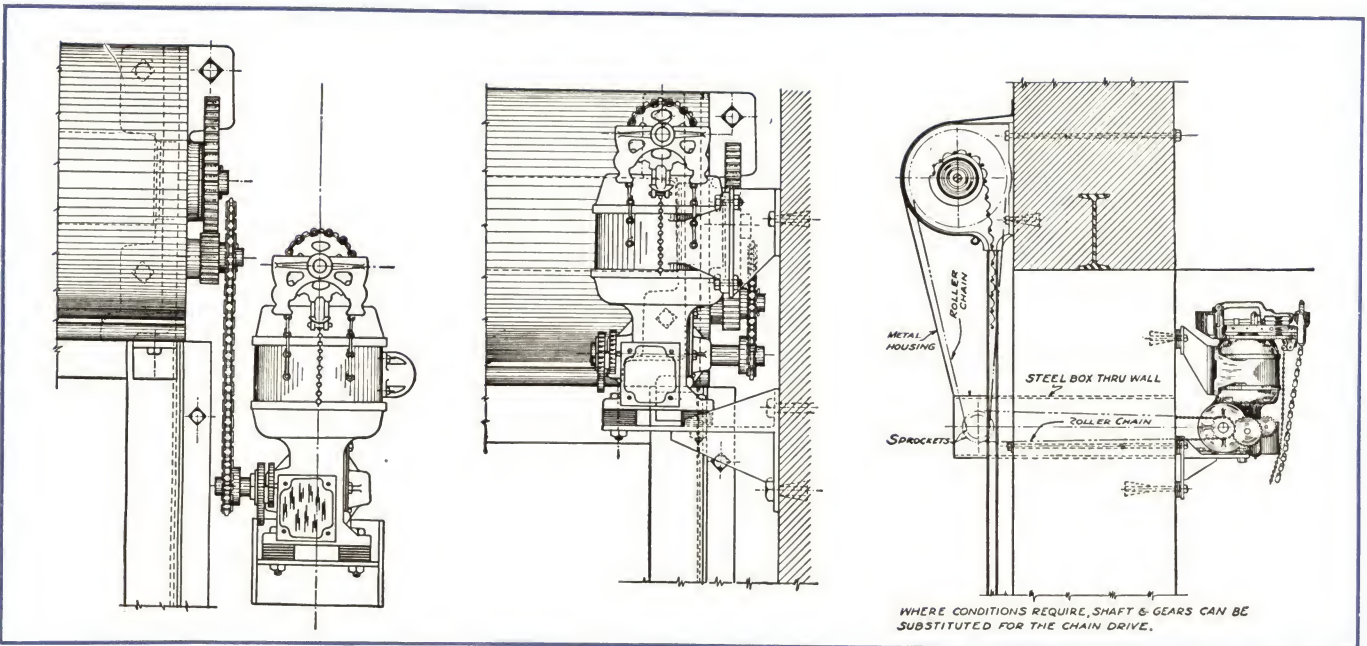
CONSULT NEAREST KINNEAR ENGINEER

Without obligation call on the nearest Kinnear Engineer to give you the advantage of his specialized knowledge, training and experience. He will give you the best application for your opening and check clearances. It is very possible that he can cite an actual installation comparable to your own in your vicinity from Kinnear's nation-wide list of users.

GENERAL

Complete current characteristics should accompany all requests for quotations. The wire, conduit and fuses which the installation of a power operator necessitates are not furnished or installed by THE KINNEAR MANUFACTURING COMPANY, but are to be provided by others in accordance with wiring diagrams supplied by Kinnear.

For electric operating equipment for the sectional upward-acting type of door, see RoL-TOP Motor Operators described on page 31.



"AKBAR" *Steel Rolling* FIRE DOORS

**LABELED BY NATIONAL BOARD OF FIRE UNDERWRITERS FOR
AUTOMATIC CLOSING IN CASE OF FIRE**



WHERE THE FIRE WAS . . .



OPPOSITE SIDE OF WALL



For Openings in Fire Walls, Vertical Shafts, Exterior Walls, Corridor and Room Partitions, in Warehouses, Factories, Department Stores and Other Industrial and Commercial Buildings . . .

ALL THE ADVANTAGES OF KINNEAR SERVICE DOORS

Akbar is particularly desirable for school buildings, hospitals, infirmaries or any other type of building housing people, because the safety device or governor controls the downward travel of the door in automatic closure; thus eliminating the element of accidental damage. Also, the counterbalance in this type of door is not affected in automatic closure, permitting the door to be quickly and easily opened after automatic closure in case of necessity. While this allows for an emergency exit, the door will not remain open and will continue to close until the link lever is reset.

Akbar is a Super Fire Door that is distinctly a Kinnear product, and sold only by Kinnear or through authorized representatives. It is designed primarily for fire protection purposes for openings that require Underwriters' labeled equipment and where insurance rates are a consideration. But it is also a service door, available for service purposes at all times, which affords maximum service door economies. Through the incorporation of various special Kinnear features automatic closure of Akbar is both positive and controlled. It is a silent guardian against fire that can be built to fit practically all classes and sizes of openings in either old or new buildings.

Nothing is more inducive to the rapid spread of fire than drafts which carry the flame through passageways and window openings. Kinnear Fire Doors offer an automatic closure for such openings . . . an inexpensive form of insurance against the numerous losses caused by serious fires. Their effectiveness as a fire guard has been proved in major conflagrations throughout the country . . . Kinnear equipped buildings being the only ones standing in otherwise completely demolished areas.

MAJOR FEATURES OF "AKBAR"

- 1 • Automatic closure is positive from any open position, the curtain being driven by powerful motor spring which not only starts but actually drives the curtain to a closed position.
- 2 • Improved barrel lock prevents further rotation of barrel when curtain is in a closed position.
- 3 • A safety device, or governor, controls downward travel of curtain in automatic closure. This device is a protection to human life and eliminates the possibility of accident, also the impact on sills, rebound and the jamming of slats which is common to gravity closing doors.
- 4 • Complete counterbalance is maintained in automatic closure. Doors can be raised with sufficient ease and will close again unless reset. A feature distinctive to the Akbar Door is that there is no possibility of people being trapped behind the door.
- 5 • The inner hood, or baffle plate, operates automatically in case of fire, closing the space between the hood and coil when door is in closed position and effectively preventing the passage of flame or smoke from one area to another.
- 6 • Akbar types can be quickly and easily reset after automatic closure, because the release of the automatic mechanism does not disturb the counterbalance spring. The link lever is merely reset and the door raised to the open position. This automatically restores tension on the auxiliary or push-down spring, and prepares the door for both normal or automatic operation. Because of this ease of resetting, it is a simple matter to frequently test an Akbar Door without trouble or expense.

METHODS OF OPERATION AND INSTALLATION

While provided with mechanism for automatic closure, Kinnear Fire Doors may be arranged for various methods of operation, when also being used for service purposes. They are, namely: manual push-up, chain hoist, or crank hoist.

INSTALLATION

As illustrated, page 22, Kinnear Fire Doors can be mounted on the face of the wall with brackets and coil entirely above the bottom of the lintel, or in the opening, in which case the brackets and coil are located on the jambs or in reveals provided in the jambs.

Where an opening requires a door on both sides of the wall, and it is desirable to mount the mechanism, between the jambs, the coils are placed either opposite each other or one above the other, depending upon the thickness of the wall.

If Kinnear Engineers are given the opportunity to work with the Architect and Contractor during the designing of the building, it is frequently possible to completely conceal all working parts of the door except fusible link and lever.

KINNEAR CONSTRUCTION

"AKBAR" THE POSITIVE AUTOMATIC CLOSING FIREGUARD

WHY AKBAR HAS NO EQUAL

In general appearance and principle of operation, the Kinnear Akbar Fire Door is similar to the Steel Rolling Service Door. But, in addition, they are provided with mechanism for positive, automatic closure in case of fire, as well as embodying numerous other construction features which make them a foremost fire protective device. The careful purchaser will find a study of the following points and the illustration on the opposite page, descriptive of an Akbar Manual Automatic Door for interior service (Class A, B and C) of exceptional interest.

1 • BRACKETS High test gray iron, providing a high factor of safety. Integral cast bracket mouth and stops give smooth operation, eliminating excessive drag of curtain on stops.

2 • HOODS Neatly formed from hot galvanized sheet metal of No. 24 U. S. gauge, fitted to give tight enclosure to coil. Reinforcing beads and flanges prevent deflection.

3 • CURTAIN Composed of interlocking slats of hot galvanized copper-bearing steel and not less than No. 20 U. S. gauge on class A, B, and C doors; and No. 22 U. S. gauge on Class D doors. Slat is designed to have a high crown to provide rigidity. Hinging centers so arranged to give free action to the curtain and to properly nest when coiled on the barrel.

4 • SPRING BARREL To encase counterbalance mechanism. Made from heavy steel tubing or pipe of thickness and diameter particularly designed to carry the curtain load and minimize deflection, thereby preventing binding in barrel bearings. Main bearings in supporting barrel are roller bearings.

5 • COUNTERBALANCE Composed of helical springs wound from especially heat-treated steel and tempered with oil. Counterbalance, individually tailored and tested on each job.

6 • RINGS Rings of malleable iron of special involute shape, designed to coil the curtain with a uniformly increasing diameter. Size adaptable to provide an initial diameter sufficient to insure uniform and constant counterbalance for all points of the door travel.

7 • SHAFTING OR TENSION ROD Of sufficient size to carry the torsional load of the spring counterbalance and of cold rolled polished steel, in order to eliminate friction in all bearings.

8 and 9 • BARREL LOCKS The weight of the curtain is balanced by springs, but when the curtain is down in the closed position, it is also supported by the barrel lock, in order to eliminate the danger of the curtain collapsing in case the temper of the spring is lost from the excessive heat of a fire.

10 and 11 • AUXILIARY RETAINING WHEELS These wheels are attached to the tension shaft (16) of the auxiliary spring (15). This spring (15) can, therefore, function only when the wheels (10 and 11) are free to turn after being released for automatic closure.

12 • SAFETY GOVERNOR This governor retains the wheels (10 and 11) and is itself held in place by the release levers (13 and 14). When these levers release the governor it permits the wheels to revolve only at a safe speed. Therefore, the force of the auxiliary spring (15) is controlled, thus eliminating the danger of personal injury to persons accidentally in the opening, and closing the door without impact on the floor.

13 and 14 • RELEASE LEVERS The automatic closing mechanism is retained by these levers. All contact points are either covered or made from non-corrodible metals, in order to eliminate any possible freezing together. The lever (14) is held up by fusible links (25) which release at a temperature of 160 degrees F.

15 and 16 • AUXILIARY SPRING AND TENSION ROD This spring is anchored to a tension rod, which is in turn held in place by the auxiliary wheels (10 and 11). It always carries stored-up energy sufficient for completely and positively closing the door from any position in the opening when automatically released. Independent of the counterbalance spring, the counterbalance is unmoled when door is automatically closed.

17 • BARREL PLUGS These close the ends of the barrel, carry the springs and are of heavy cast-iron, especially designed for holding the ends of the spring and eliminating the usual excessive strain at the spring ends.

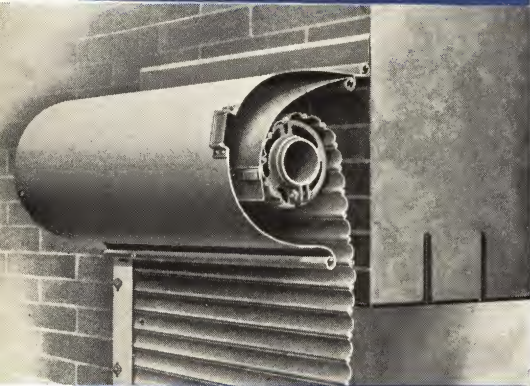
18 • ADJUSTING WHEEL This is connected to the tension rod (7) carrying the counterbalance spring and attached to the bracket opposite the one carrying the automatic mechanism. The tension of the counterbalance spring is controlled by this wheel, permitting adjustment of the door's operating balance.



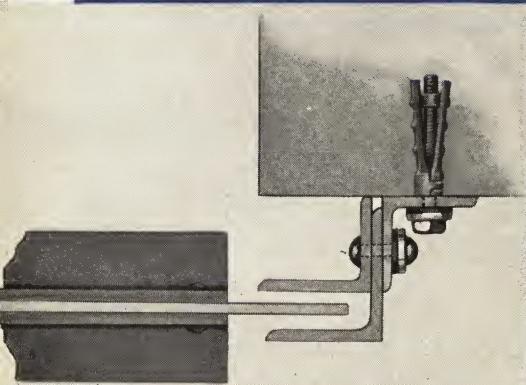
Mechanism of the chain hoist Akbar



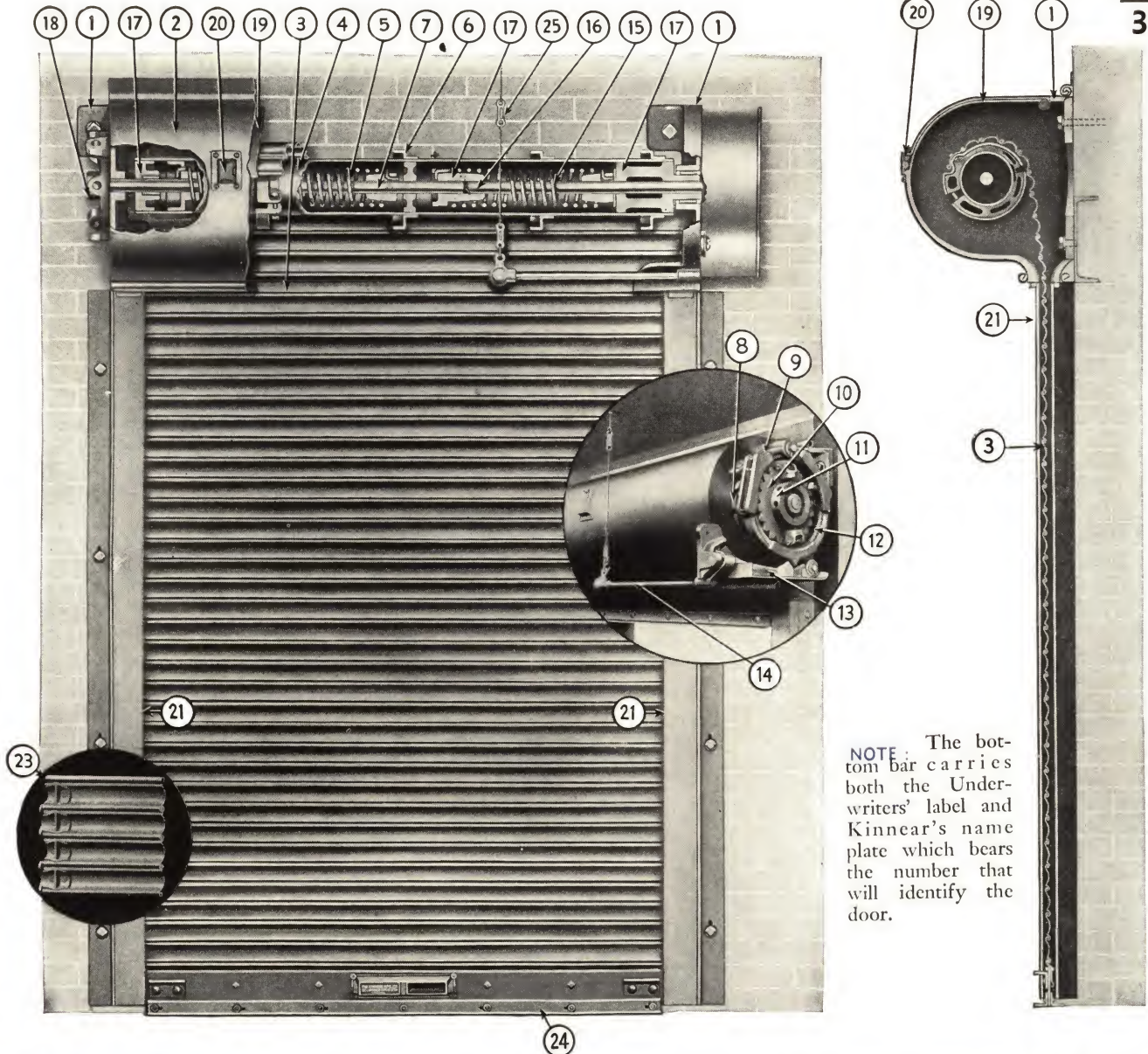
Mechanism of the crank hoist Akbar



Auxiliary hood or barrel shield



Two of the provisions for expansion in Akbar construction



NOTE: The bottom bar carries both the Underwriters' label and Kinnear's name plate which bears the number that will identify the door.

19 • DROP HOOD OR BAFFLE A metal shield of the same gauge as the hood is attached to the main hood by a continuous beaded joint, permitting the shield to hinge over the curtain coil. This shield forms the drop hood and is held up out of the way by a fusible link attachment (20). In case of fire, the link melts and the drop hood drops on the coil and becomes a baffle against passage of smoke and hot gases around through the bracket.

20 • HOOD FUSIBLE LINKS These links hold the drop hood or baffle out of the way during normal operation and are so distributed to provide necessary alignment of the hood. Fusible at 160° F.

21 • GUIDES Fabricated from structural steel of at least $\frac{3}{8}$ in. thickness. Slotted holes are provided for the rivets holding angles or plates together and for the bolts securing guide to the wall. Heat destructible washers are placed underneath the heads of the rivets and bolts, thus providing means for expansion and eliminating the danger of buckling in case of fire. The depth of the grooves is increased to accommodate the increase in width of openings.

22 • CLEARANCE Sufficient clearance is provided between ends of curtain and back of guides and between all other operating parts, to accommodate an expansion for temperatures up to and including 1800° F.

23 • END LOCKS These are placed on every slat and are made of malleable iron, shaped to close the concave ends of slats and to prevent the passage of hot gases and smoke around edge of curtain. These end locks retain slats in place, maintain alignment and protect the slats against abrasion in guides.

24 • BOTTOM BAR Designed to reinforce the bottom of the curtain and made of two angles and a flat plate. Provided with handles for raising the door and

with stops for retaining it when open, in an exact position against the coil bracket and free for a direct start in closing automatically in case of fire. Slide bolt locks, as used on steel rolling service doors, can be furnished on these bottom bars when specified.



25 • AUTOMATIC FUSE UNIT This is the fusible link that holds the door in readiness in case of fire and when exposed to a temperature of 160 degrees F., disintegrates, releasing the mechanism that automatically closes the door. By the use of two of these links on the mechanism, every possibility of operating failure is eliminated.

UNDERWRITERS' LABELING REQUIREMENTS

UNDERWRITERS' LABELS

Kinnear Fire Doors and Shutters are inspected by the Underwriters' Laboratories, Inc., and when built within size limits, listed below, bear the required label. While the Underwriters' Label is the assurance of an acceptable and rated fire guard, it is not an indication of maximum quality, as set forth in the following quotation taken from their code book: **PRODUCTS OF THE MANUFACTURERS LABELED AND LISTED AS MENTIONED HEREIN ARE NOT NECESSARILY EQUIVALENT IN QUALITY OR MERIT; THE LABELING AND LISTING INDICATING ONLY COMPLIANCE WITH UNDERWRITERS' STANDARDS.**

In making comparisons, this point should be considered, as Kinnear Doors embody refinements that are unique and which increase their value and utility.

Since fire protection regulations vary in different localities and the existence of automatic sprinkler systems often modify door requirements, it is advisable to consult the rating bureau having jurisdiction to ascertain the exact type of installation that will be required. However, the following will cover the ground in the majority of cases. The chart illustrates the different situations in which the various label classifications are required.

EXPLANATION OF CHART — TYPES OF LABELS

The following gives a more complete explanation of the chart, illustrating where different class labels are required and indicating the specific Akbar model that should be used in each situation . . .

Class A Labels Necessary for openings in fire walls. Opening must not exceed 80 sq. ft., the width or height not to exceed 12 ft.

Class B Labels Necessary for openings in vertical shafts, such as elevator shafts. Size limitations the same as in Class A.

Class C Labels Necessary for openings in corridors or room partition walls. Size limitations the same as in Class A.

Class D Labels Necessary for openings in exterior walls. Openings must not exceed 100 sq. ft., width and height not to exceed 12 ft.

As Kinnear Fire Doors of large size are built according to the same standards, the Underwriters will inspect and issue an oversize label on construction (with exceptions) for doors not exceeding 24 ft. in width or height.

As requirements vary in different localities, the local Inspection Bureau should be consulted. Kinnear Engineers will, of course, work closely with you and the Inspection Bureau and gladly submit detailed recommendations. This engineering assistance is only part of the complete service at your disposal when you carry "Kinnear" in your specifications.

Situation D. In the exterior walls D's are windows exposed to adjoining risks or in the court, to the other sections of the building. These should be protected preferably with Kinnear Superior Window Shutters described on Page 21 of this bulletin. Openings D are exposed to adjoining risk which should be equipped with Akbar Model FHD or FCD on openings exceeding 80 sq. ft. in area, and Model FMD on those smaller. For condition calling for between-jamb mounting use Model BHD or BCD in the former situation and BMD in the latter.

Situation B. Are in vertical shafts (elevator, lowerator, escalator and stair well). In fireproof buildings they should be equipped with Akbar Model FCB on openings exceeding 80 sq. ft. in area and Model FMB on those smaller. In non-fireproof buildings requiring between-jamb mounting, substitute B for F in the first letter of the model given above. We do not recommend rolling doors for stair wells, as a hinged door swinging out should be used if possible.

Situation A. Are where Kinnear steel rolling doors approved for fire wall openings should be used. Where openings in fireproof buildings exceed 80 sq. ft. in area, use Akbar Model FHA or FCA. For smaller size use FMA. In non-fireproof buildings requiring between-jamb mounting substitute B for F in the first letter of the model given above.

Situation Z. Is peculiar in that the elevator shaft is in the fire wall and the following applies:

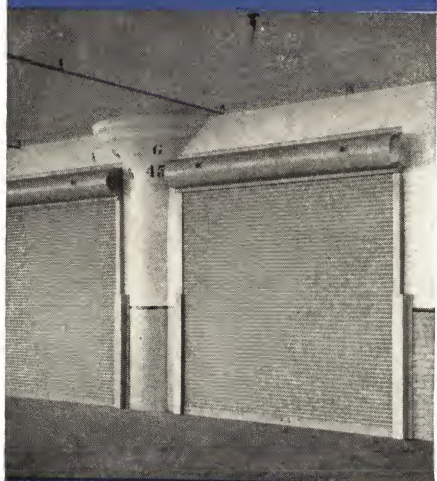
1. **On Standard Shafts**—Each opening in standard shafts communicating with more than one building or section of a building shall be provided with a fire door for Class A or B situations.

2. **On Sub-Standard Shafts**—Each opening in sub-standard shafts communicating with more than one building or section of a building shall be provided with an approved fire door for Class A or B situations, and in addition, each opening into the shaft, through the fire wall shall be provided with an approved door for Class A situations. Thus, two doors are required for each opening in the fire wall.

NOTE: In Class A, B or C situations doors mounted on the face of the walls should usually be confined to fireproof buildings where there is little, if any, danger of the collapse of the building and injury to the door from falling materials. It is recommended that the approved method of installation for a given situation be discussed with the local Inspection Bureau.



above . . . illustrates how mechanism is concealed in a between-jamb mounted Akbar.



above . . . A standard face-of-wall mounted Akbar.

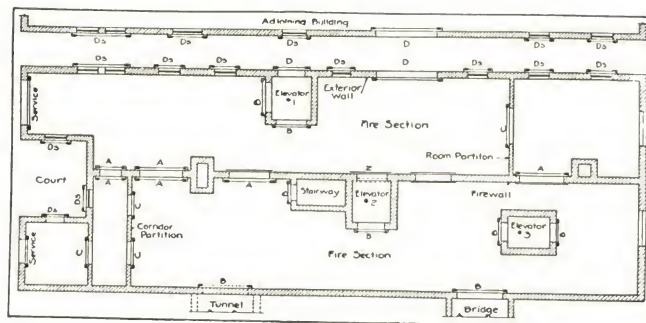
KEY TO AKBAR MODELS

- F—Face-of-wall mounting.
- B—Between-jamb mounting.
- M—Push-up type operation.
- S—Super-imposed bracket arrangement.
- H—Chain type of operation.
- C—Crank type of operation.
- R—Rewind method of operation.
- W—Wrench wind-up operation.
- T—Arrangement for operation through the wall.

Label classification designated, as follows, by the *last* letter of Model number.

- A—Class A Label.
- B—Class B Label.
- C—Class C Label.
- D—Class D Label.

Kinnear also manufactures other styles of Steel Rolling Fire Doors that are endorsed by the Underwriters and are practical for certain conditions. Therefore, be sure to call Kinnear for consultation before considering a less satisfactory type of fire door or window shutter.



"SUPERIOR" *Steel Rolling* WINDOW FIRE SHUTTERS

LABELED "CLASS D" BY NATIONAL BOARD OF FIRE UNDERWRITERS FOR AUTOMATIC CLOSING OF EXTERIOR WALLS IN CASE OF FIRE

Superior Fire Shutters are substantially the same in design as the Kinnear Akbar Fire Doors, except that they are not constructed for service raising and closing. They are provided with the safety governor regulating the closing speed so as to eliminate all personal danger hazards and destructive impacts on the window sill. Provision is made for periodic testing. By the tripping of a release chain accessible from the inside wall, the shutter is closed the same as if it were automatically closed in case of fire. It can then be raised to the open position by a gearless rewind mechanism and a hand crank easily accessible from the floor. Crank to be removed when not in use.

To insure positive starting, a powerful push-down spring gives the curtain a hammer starting blow of approximately 200 inch-pounds simultaneously with fusing the releasing link.

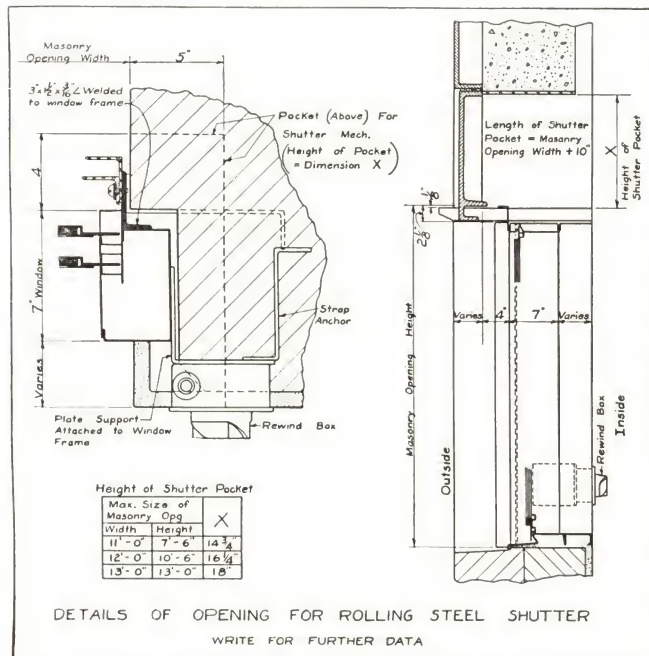
Superior Fire Shutters are constructed to the standards of the Underwriters and labeled for exterior window openings not exceeding 100 sq. ft. in area; or more than 12 ft. in width or height. True to its name this is a superior device embodying the same skilled workmanship and high quality materials as found in other Kinnear equipment.

As can be seen from the illustrations the Superior Fire Shutters can be almost completely concealed, particularly when they are installed at the time the building is constructed. For application on old buildings, the coil and brackets are mounted on the outside face of the wall, above the lintel.

OUTSTANDING FEATURES

To assure years of dependable, positive fire protection, "Superior" Shutters have the following unique features: (1) To insure positive closure, a powerful push-down spring gives the curtain a hammer-like starting blow simultaneously with fusing of release link; (2) They are set to remain normally open but can be tested as frequently as desired by means of a releasing device which releases link-lever exactly the same as in automatic closure; (3) "Superior" Shutters can be closed at any time by simply removing the releasing chain from keeper which is located on inside face of wall; (4) To raise shutters a re-winding device is located on the inside face of wall with outlet for insertion of crank. By turning crank, shutter is raised and tension is automatically restored on push-down or motor spring. The counter-balancing spring is never affected by testing or automatic closure and once set there is no need for readjusting. Simply drop curtain and raise it as frequently as desired by following the above instructions.

NOTE: The Superior Fire Shutters are ideal also for dark rooms, such as X-ray rooms in hospitals, etc. Many of them are at this time being used for that purpose. Special recommendations will be submitted upon request.



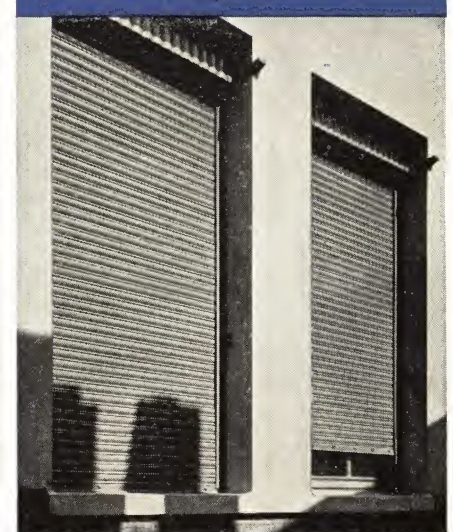
A Springfield, Illinois building that was saved by Kinnear Rolling Shutters.



The Hollywood Telephone Exchange was equipped with Kinnear Rolling Shutters.



Illustrates how the mechanism of Kinnear Shutters may be concealed.



Architects' Specifications

FOR KINNEAR AUTOMATIC STEEL ROLLING FIRE DOORS *and* WINDOW SHUTTERS LABELED BY NATIONAL BOARD OF FIRE UNDERWRITERS

OPENINGS—Shall be equipped with Kinnear Steel Rolling Automatic Fire Doors of the Akbar Construction.

LABEL—All doors to bear the label of the National Board of Fire Underwriters.

Note: The National Board of Fire Underwriters label and classify the Akbar Doors as Class "A" for fire walls, "B" for vertical shafts, "C" for corridor and room partitions and "D" for exterior walls, where the opening does not exceed in area 80 sq. ft. for Class "A", "B", "C", doors and 100 sq. ft. for Class "D" doors, or 12 ft. in width or height. Openings exceeding these dimensions in size and not exceeding 24 ft. 0 in. in either dimension are furnished with Underwriters' Oversize Label.

OPERATION—All doors to be automatic closing in the event of fire. Doors not exceeding 8 ft. high or 80 sq. ft. in area can be operated by means of handles on the bottom bar; but larger sizes shall be operated through reduction gear by hand chain (or crank).

AUTOMATIC CLOSING DEVICE—To be thermally controlled by means of a fusible link. The door shall be forced to a closed position by an auxiliary spring in spring barrel which is inoperative during normal operation and released by thermal control without affecting the permanent adjustment of the counterbalance spring.

COUNTERBALANCE—Curtain to be evenly balanced by helical springs contained within spring barrel. Counterbalance to be permanently maintained, and doors shall operate easily, normally and be readily operable after automatic closure.

SAFETY DEVICE—To be an automatic governor of escapement type inoperative

during normal operation but which shall so control the speed of the curtain during automatic operations as to prevent injury to persons accidentally under the door.

CURTAIN—To be of Kinnear interlocking slats rolled from copper bearing steel with no sharp bends and hot galvanized. The ends of the slats to be fitted with endlocks $\frac{3}{8}$ in. thick. Gauge of metal and type of endlocks as established by National Board of Fire Underwriters for the specified class risk. Gauge of metal to be No. 20 U. S. gauge for Class "A", "B", and "C" doors and No. 22 U. S. gauge for Class "D" doors.

BRACKETS—To be high grade iron with roller or ball bearings in bracket for revolving end of barrel.

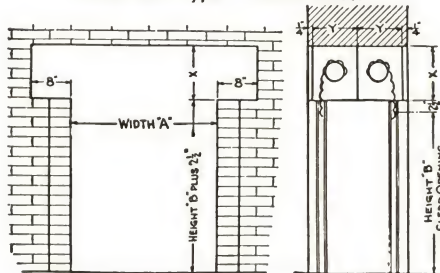
GUIDES—To be of structural steel $\frac{3}{8}$ in. thick arranged for expansion at all rivet and bolt connections.

HOODS—The coils to be enclosed with sheet metal housing of No. 24 U. S. gauge. For interior wall doors hoods to be furnished with a drop hood thermally controlled, closing against the coil when automatically released, but not interfering with coil during normal operation.

PAINT—All parts of the door except mechanism to be given one shop coat of red oxide; the mechanism to be dipped in flat black.

ERECTION—All doors shall be erected by the manufacturer or his authorized representative and shall be guaranteed for a period of one year from the date of completion of erection, that any part defective in material or workmanship will be replaced without charge to the customer.

Hand Lift Type : Under Lintel

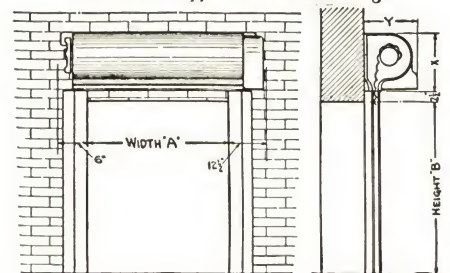


CLEARANCES

HAND LIFT TYPE : UNDER LINTEL

Height B, Ft.	6		7		8		9		10		11		12	
Width A, Feet	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
3, 4	17	13	17	13	17	13	17	13	18	15	18	15	20	17
5	17	13	17	13	17	13	17	14	18	15	20	17	20	17
6	17	13	17	13	17	13	17	14	18	16	20	17	20	17
7	17	13	17	13	17	13	17	14	19	16	16	20	17	20
8, 9	17	13	17	13	17	13	17	16	19	16	16	20	17	20
10	17	13	17	13	16	19	16	19	16	19	16	20	17	20

Hand Lift Type : Face Mounting

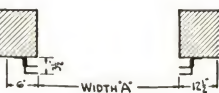


HAND LIFT TYPE : FACE MOUNTING

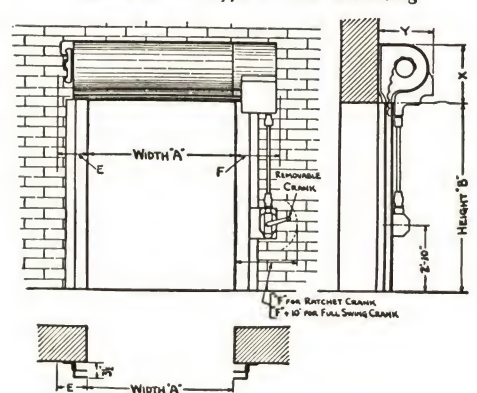
Height B, Ft.	6		7		8		9		10		11		12	
Width A, Feet	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
3	15	16	15	16	15	16	17	18	17	18	18	18	18	18
4	15	16	15	16	15	16	17	18	17	18	18	18	18	19
5	15	16	15	16	15	16	17	18	17	18	18	19	19	19
6	15	16	15	16	15	16	17	18	19	19	19	19	19	19
7	15	16	16	16	16	16	18	18	19	19	19	19	19	19
8, 9	15	16	16	16	18	18	18	18	19	19	19	19	19	19
10	15	16	18	18	18	18	18	18	19	19	19	19	19	19

Note: Hand lift types not recommended for sizes exceeding 80 sq. ft. in area.

Note: For doors of intermediate size, use clearance dimensions listed for next larger width or height. Slat No. 2 used on all door sizes listed on this page. For slat detail see page 7.



Crank Shaft Type : Face Mounting



CHAIN HOIST TYPE : FACE MOUNTING

Hgt. B, ft.	6				7				8				9				10				11				12			
Width A, ft.	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
5, 6, 7	17	20	9	9	17	20	9	9	17	20	9	9	17	20	9	9	17	20	9	9	17	20	9	9	17	20	9	9
	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
8	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
9	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
11	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10	17	20	9	10
12	17	20	10	10	17	20	10	10	17	20	10	10	17	20	10	10	17	20	10	10	17	20	10	10	17	20	10	10

CRANK SHAFT TYPE : FACE MOUNTING

Hgt. B, ft.	6				7				8				9				10				11				12			
Width A, ft.	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
5, 6, 7, 8	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12
9	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12
10	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12
11	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12	17	17	9	12
12	17	17	10	13	17	17	10	13	17	17	10	13	17	17	7	13	17	17	7	13	18	18	7	13	18	18	7	13

DIMENSIONS ABOVE ARE FOR GENERAL REFERENCE ONLY AND NOT FOR CONSTRUCTION PURPOSES

KINNEAR *Steel Rolling* GRILLES

PROTECTION . . . with AIR, LIGHT, VISION and VENTILATION

For Interior and Exterior Use on Concessions, Store Entrances and Windows, Vaults, Corridor Openings, Courtyards, Loading Platforms and Other Openings In Monumental, Industrial and Commercial Buildings.

Nothing in the category of protection so completely combines all the principles of efficient, reliable and attractive design essential in planning up-to-date buildings, of every class, as the Kinnear Rolling Grille. Operating on the same principle as the Steel Rolling Door, described on pages 6 to 13, the Kinnear Rolling Grille is a permanently installed and attractively designed barrier that is remarkably strong when closed and locked but out of sight when opened. Coiling above the opening and perfectly spring counterbalanced, it saves floor and wall space and can be raised or lowered rapidly and easily.

NOTE: The illustration below shows the sturdy construction of the grille and how it is locked in heavy steel jamb grooves. Also note the unique, positive cylinder locking arrangement.



THE ORIGINATOR OF THE INTERLOCKING SLAT DOOR

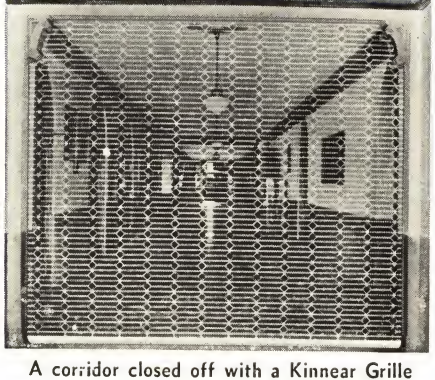
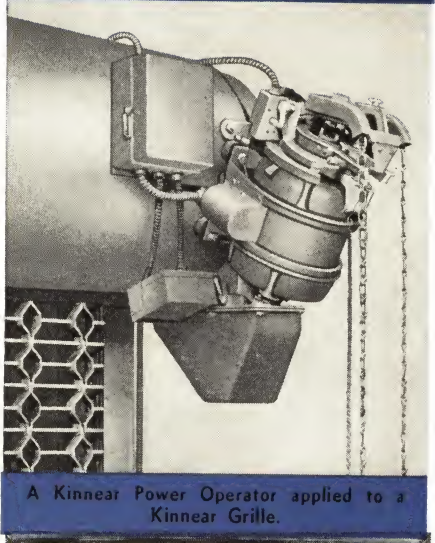
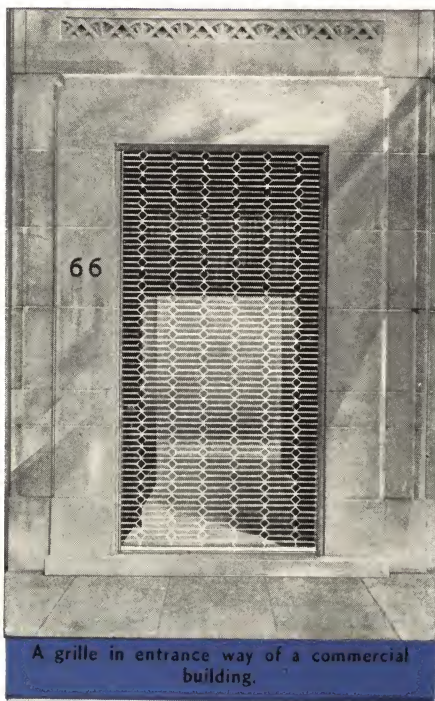
KINNEAR
ROLLING DOORS

23

Bulletin No. 23

Rolling GRILLES . . . ROLL UP LIKE A WINDOW SHADE

Built in Steel, Stainless Steel, Bronze and Aluminum



CONSTRUCTION

Built of various metals and attractively designed, the Kinnear Rolling Grille will harmonize with any style architecture. The grille proper is of remarkable strength and artistically designed of $\frac{1}{8}$ in. round steel bars spaced close enough to prevent the admittance of a man's hand or large projectiles. For locking in closed position a lock is furnished.

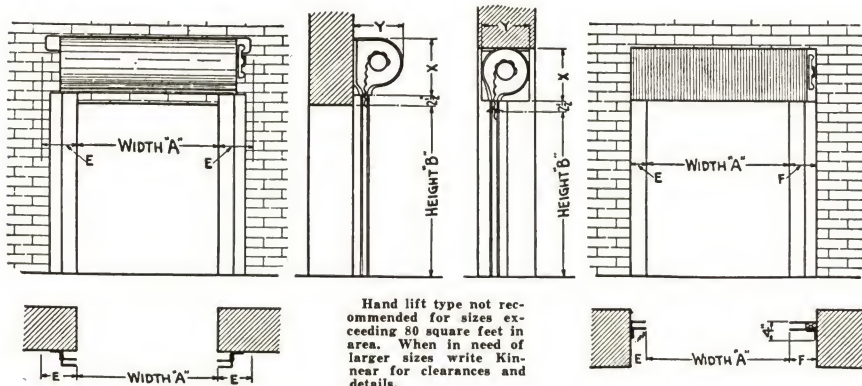
It coils on a heavy pipe or barrel above the lintel and is locked in and travels in steel guides mounted on the side of the opening. Helical springs enclosed in the pipe or barrel provide accurate counterbalance. For housing the barrel and coil a neat hood of suitable metal is furnished.

The Rolling Grille is ruggedly built throughout, of the finest materials obtainable. Every part is designed to give maximum wear. It is a protective device that will last a lifetime, with a negligible maintenance cost.

METHODS OF INSTALLATION AND OPERATION

Similar to the Kinnear Rolling Door the Kinnear Rolling Grille may be mounted on the face of the wall with brackets and coils entirely above the bottom of the lintel and with edges of guides flush with the face of opening jambs; or where headroom is limited and grille cannot be installed on the face of the wall, it may be mounted in the opening. In this latter case, the brackets and coil are mounted under the lintel with brackets and guides mounted in reveals in the wall. (See page 10.)

Methods of operation available for the grille are likewise similar to the Steel Rolling Door, namely manual, mechanical by hand chain or crank and motor. For further details see page 12.



Height B, ft.	6				7				8				9				10				11				12			
Width A, ft.	3 to 12				3 to 12				3 to 12				3 to 12				3 to 10				3 to 8				3 to 7			
Code	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F	X	Y	E	F
Face of Wall	16	15	4		16	15	4		18	17	5		18	17	5		19	18	6		19	18	6		21	19	6	
Between Jambs	16	15	3	4	17	15	3	4	18	16	3	5	19	17	3	5	19	18	3	5	19	18	3	5	21	19	3	5

DIMENSIONS ABOVE ARE FOR GENERAL PURPOSES ONLY AND NOT FOR CONSTRUCTION PURPOSES

SUGGESTED SPECIFICATIONS

Grille to be of the Kinnear Rolling Type, coiling above the lintel in 24 U. S. gauge galvanized steel hood, on heavy steel barrel journaled in cast iron brackets and traveling in guides mounted at the sides of the opening. Barrel to encase steel, helical oil tempered counterbalance spring with necessary factor of safety. Grille proper to be composed of horizontal $\frac{1}{8}$ in. round steel bars, spaced not to exceed $1\frac{1}{2}$ in. apart, joined by octagonal pressed steel links at intervals of approximately $8\frac{3}{8}$ in. End links to be engaged in guides fabricated of heavy structural steel members, in manner to prevent grille from leaving guides under excessive pressure.

RoL-TOP . . . THE SECTIONAL UPWARD-ACTING DOOR

For Residential and Commercial Garages and For Commercial and Industrial Buildings.

GENERAL DESCRIPTION

Like other Kinnear Doors, the RoL-TOP Door opens upward, affording maximum convenience, efficiency and permanence of service, combined with the advantage of the admittance of light. Attractively paneled wood sections, or copper bearing steel panels which have been given a heavy protective zinc coating by the hot dip process, are hinged together and fitted at both ends with heavy duty ball-bearing rollers. By means of these rollers, which operate in steel tracks or guides mounted on the jamb and extending horizontally back from the lintel, the door rolls to the overhead position. One or more springs, (see DeLuxe and Standard Models) connected to the door by Trulay plow steel cable, accurately counterbalance the door. A special sealing device and heavy cylinder lock make the door weather-tight and burglar-proof. It can be arranged for operating manually, mechanically or electrically. Sections can be either solid or arranged for glass. The door throughout is built to the highest standards of workmanship and materials.



USES

It is ideally suited for old or new residence garages, service stations, warehouse service doors, factory receiving platforms, boathouses and other buildings. The clean cut straight line design of the Steel RoL-TOP harmonizes with almost any architecture. Although the conventional wood panel can be used with almost any mode of architecture, special designs can be worked out to meet individual tastes.

ADVANTAGES

The advantages of RoL-Top are numerous. It raises over snow, ice and swollen ground. Never sags, sticks or binds. Out of the way of wind or car, staying where it's PUT. Lends itself to all styles of panel designs. Saves wall and floor space, permitting cars and other objects to be placed within a fraction of an inch of the door. It opens easily, rapidly and smoothly. Strong, rugged construction insures permanence and insignificant maintenance.

SIZES AND LIMITATIONS

Practically all RoL-TOP Doors are custom built for the individual job, thereby making it possible to supply them in any size within limits of sound engineering. With the following exceptions, all RoL-TOP Doors of special or large size are built according to the specifications of the DeLuxe Model described on pages 26 and 27. The "Standard Model" Wood RoL-TOP (see page 29) is furnished in any size from 8' x 7' to 12' x 10', and in widths up to 16' when height does not exceed 8'.

As for the "Standard Model" All Steel RoL-TOP, it may be furnished in sizes up to 14' 2" wide, when height does not exceed 7' 6"; or 12' 8" when height does not exceed 9'; or 10' 8" when height does not exceed 10' 6".

The "Junior" Model Wood RoL-TOP, being designed for low cost residential work is furnished only in the stock sizes shown on page 28.

In addition to this wide range of sizes, Kinnear also offers numerous auxiliary units, which make the RoL-TOP Door adaptable to practically any opening.

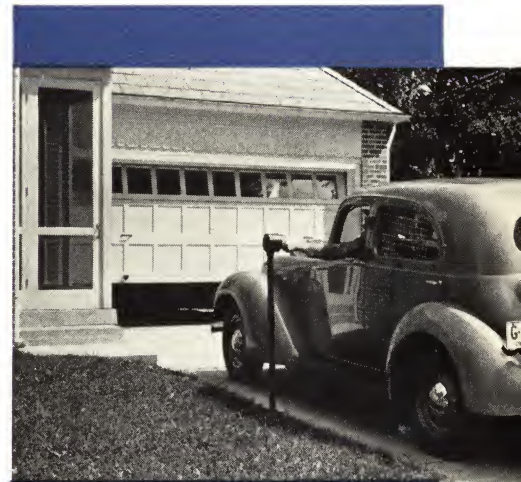
Electric Operation

PUTS MAGIC IN YOUR DOOR

Puts Magic in Your Door! There's practically no other way to describe the complete convenience the RoL-TOP Motor Operator provides when used with the Kinnear RoL-TOP Door. With a touch of a button or the turn of a key which may be located at any strategic point, the door opens or closes smoothly and automatically. As can be quickly seen from the description on page 31, it is a simply and sturdily built unit that conforms to Kinnear's customary high quality standards.

See Page 31.

Sections are Fabricated in
WOOD
STEEL or
OTHER ALLOYS



The modern home demands the convenience and neat appearance of The RoL-TOP Door.



Space economy and convenience of RoL-TOP Doors ideal for lubricatorium.

Below: The All-Steel RoL-TOP Door is built to withstand the hard usage



All Steel RōL-TOP

A GALVANIZED STEEL DOOR BUILT FOR YEARS OF HARD SERVICE

WEATHER-PROOF • FIRE-PROOF • BURGLAR-PROOF • WEAR-PROOF

plus

ALL THE ECONOMIES OF UPWARD ACTION, THE COMPLETE DOOR SERVICE AND THE 9 MAJOR DOOR REQUIREMENTS

KINNEAR RōL-TOP VITAL TO LASTING

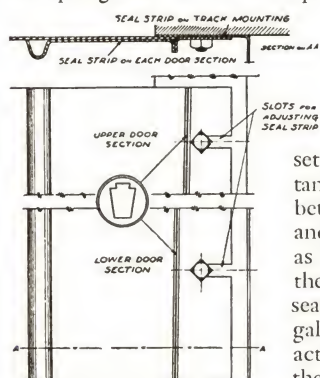
1 • TORSION SPRING COUNTERBALANCE The DeLuxe Model RōL-TOP, which is illustrated on this and the opposite page is counterbalanced by the famous Kinnear

Single-Shaft Torsion Spring mechanism . . . a proved principle of counterbalance that has been used for over forty years on other types of Kinnear Rolling Doors. One or more oil-tempered torsion springs on a solid steel shaft is held anchored in a fixed safe position—between the back end of the horizontal tracks or over lintel. The bottom of the door is connected to this shaft by a heavy plow-steel Trulay cable operating over ball-bearing sheaves and large diameter scored drums. This is a neat, compact counterbalance that insures absolute synchronized action . . . a uniform tension on both sides of the door at all times—quiet and smooth in operation—eliminates the possibility of the door binding in the tracks—and by one adjustment the tension on the spring can be set with precision. This feature alone contributes greatly to the

dependability of RōL-TOP under the severest kind of use. For counterbalance alternates see pages 28-29.

2 • KEYSTONE SEAL RōL-TOP is made weather-tight by means of an ingenious "Keystone" sealing arrangement that forms a snug fitting double contact between the door and the jamb. Jamb strips are so

set as to taper toward each other at the bottom. The distance between them at the bottom is less than the distance between them at the top. Each edge of the door is tapered and rabbeted to match these seal strips, the result being that as the door closes it seals and wedges itself tightly between these seal strips in exactly the same manner that a Keystone seats in an arch. The jamb seal strips are made of No. 16 gauge galvanized steel angles. This arrangement gives the door free action because the instant the door is raised a space between the door and the strip develops and steadily increases. It also

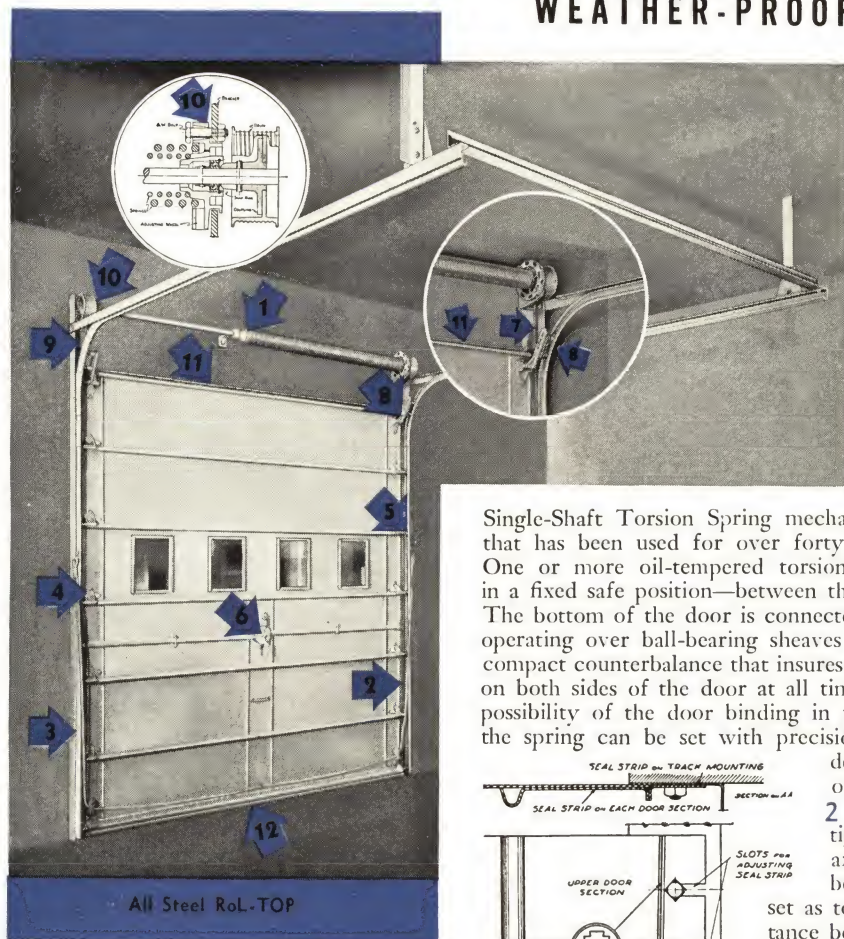


retains the door in alignment on the edges, insuring the tightest kind of a seal.

3 • CONTINUOUS ANGLE MOUNTED TRACKS The strong steel tracks are mounted on the jamb with a continuous steel angle, providing a permanent, solid jamb foundation for the door. Eliminating vibration. Making erection still easier. Neat and clean-cut looking. Actually provides a strong frame upon which the door is lined up and firmly held.

4 • HEAVY DUTY HARDWARE Rugged, durable, malleable iron or pressed steel hardware is bolted to the door sections with through carriage bolts (no screws). It easily carries all the strain applied to the door. Rigid and resists breaking and bending! It is given a heavy protective finish. Here is door hardware that will endure years of the hardest type of treatment.

5 • BALL BEARING ROLLERS It is said that nothing rolls easier than a ball, which partially explains RōL-TOP's easy operation. RōL-TOP ball-bearing rollers are of special Kinnear design which laboratory tests show are especially durable. A one-piece solid steel case operating around a hardened steel race and sleeve and carried on a 1/2 in. fixed steel pin. A cylindrical head on the pin locks the roller in the track and to the hinge attachment . . . A free floating arrangement that facilitates operation and yet holds the doors securely and eliminates any chances of the door falling when in the horizontal position. Here is a roller that will withstand use and loads far in excess of any door demand.



GALVANIZED STEEL SECTIONS

Here are door sections that are in keeping with the trend toward steel—practically indestructible. New to the sectional door field, but an old and proven Kinnear principle of construction. Approximately 18 in. high (bottom section varies depending on height of door) and formed of copper bearing steel which is given a heavy protective zinc coating by the hot-dip galvanize process, they have an amazing initial strength. But in addition, to the end of each section, as well as to every point where hardware is applied, is welded an additional stiffener or pressed steel member. The strength and durability that results from this combination gives sections that will withstand wear and tear year in and year out—resist all kinds of weather—will not warp, come apart, swell, bind or split. Nothing ever before developed equals them for meeting all the demands of a thoroughly serviceable and modern appearing door.

Wood RoL-TOP

ALL STYLES OF PANEL DESIGNS . . . BUILT FOR YEARS OF GRUELING SERVICE
THE IDEAL GARAGE DOOR • CONVENIENT
EASY TO OPERATE

and

RECLAIMS USABLE SPACE,
EASY TO INSTALL IN
OLD OR NEW BUILDING,
AND WEATHER-PROOF

CONSTRUCTION CONVENIENCE

6 • STRONG CYLINDER LOCK A spring release slide bolt of heavy, rugged design, fitted with a standard make cylinder lock, provides a dependable burglar-proof locking device. It is key operated from outside. Also two or more doors are keyed alike unless separate keying is requested. At an extra charge lock cylinders can be furnished for keying with grand master keying system.

7 • PLOW STEEL CABLE The counter-balance shaft is connected to the door by means of $\frac{3}{8}$ in. to $\frac{1}{2}$ in. preformed plow steel cable. It has a safety factor from 12 to 20 and formed of preformed wire, it resists kinking, is safer and does not fray. A further example of RoL-TOP's high quality construction.

8 • SNUG FITTING CLOSING ARM The rollers carrying the top corners of the door are on an adjustable closing arm that hinges on the top corner casting. When the door is closed this arm forces the top section snug to the jamb by means of a lever action on the arc of the track . . . sealing the top of the door to the jamb. Weather-tight!

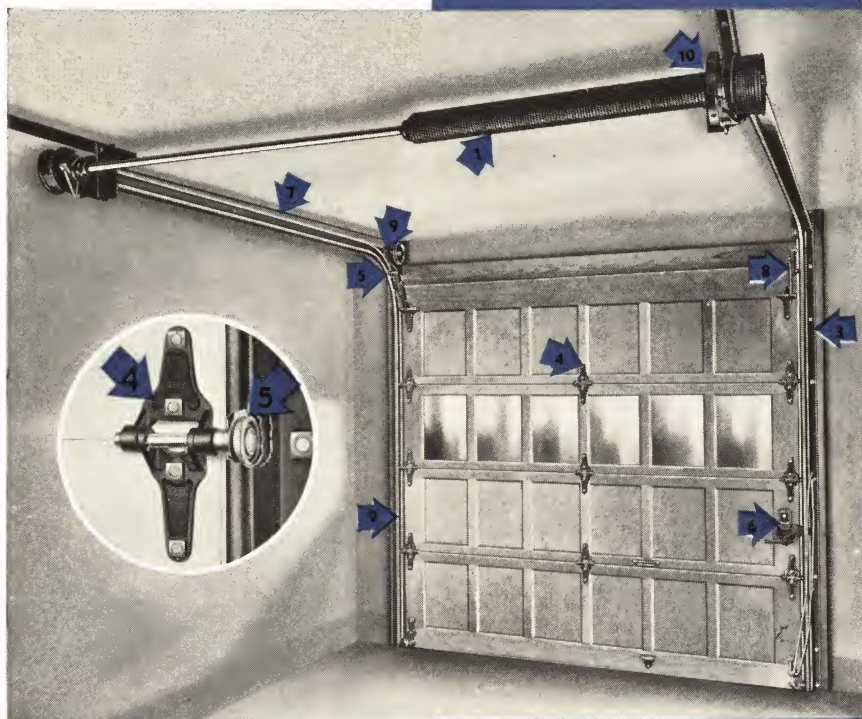
9 • RUGGED CORNER BRACKET A steel corner bracket carries cable sheave in perfect alignment, provides secure cable attachment and anchors the track bend. It also insures accurate placement of straight track members and holds track assembly rigid and in permanent alignment. Not affected by weather conditions.

10 • GREASE SEALED SHAFT BEARING The shaft which carries the torsion counterbalance spring operates freely on large, precision-type grease-sealed ball-bearings. Lubrication at this point is never required. Wear and friction at this point are permanently reduced to a minimum, adding more years of carefree service to the RoL-TOP Door.

11 • TOP WEATHERSTRIP For further weather-tightness, the All-Steel RoL-TOP has an adjustable weatherstrip at the top of the door that contacts the head and takes care of any slight variation between the lintel and the top section of the door.

12 • BOTTOM WEATHERSTRIP The bottom of the All-Steel RoL-TOP Door has a rubber weatherstrip protected with a steel strip and brass screwed to the bottom section. This seals any slight irregularities in the floor and prevents the elements entering.

13 • ADAPTABLE FOR MOTOR CONTROL It is more economical to install motor at the installation of a RoL-TOP Door. However, all models are designed so that at a later date automatic motor operator may be attached. Many architects leave proper clearance. See Page 31.



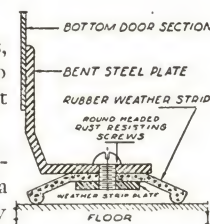
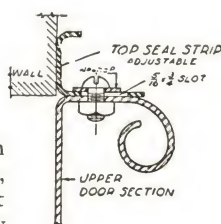
Wood RoL-TOP

WOOD PANEL SECTIONS

Sections are approximately 2 ft. high and panels approximately 12 in. wide, except on special orders. Sections ship-lapped and have graduated end rabbet to fit Kinnear's RoL-TOP Special "Keystone" type weather-proof sealing device.

Standard and special sizes not exceeding 8 ft. wide and 8 ft. high will be furnished with stiles and rails either $1\frac{1}{4}$ or $1\frac{1}{2}$ in. Sizes 15 ft. and 16 ft. wide by 7 to 8 ft. in height at $1\frac{1}{2}$ in. thick, reinforced with Kinnear's special trussing members. Other special sizes exceeding 8 by 8 ft. are $1\frac{1}{4}$ in. thick with all doors over 12 ft. 2 in. in width reinforced with Kinnear's special steel trussing bar which minimizes the natural tendencies of wood to warp and deflect, increasing door's life of service. Doors under 12 ft. 2 in. in width can be reinforced, if specified, at extra cost.

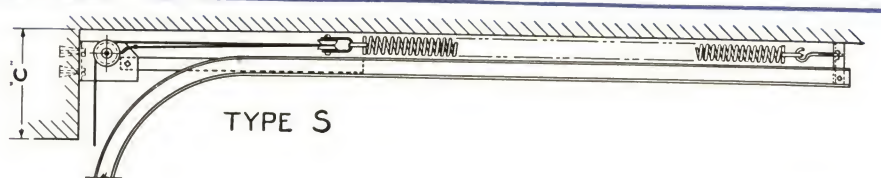
Stiles and rails of doors of standard design of finest quality kiln dried lumber with panels of $\frac{3}{8}$ in. three-ply fir. Frame and panels of special woods obtainable from mill stocks can be furnished if specified. Sections can be arranged for glass as specified. Also special paneling effects can be furnished to meet individual requirements.



KINNEAR ROL-TOP *for Lasting Satisfaction*

TYPE S

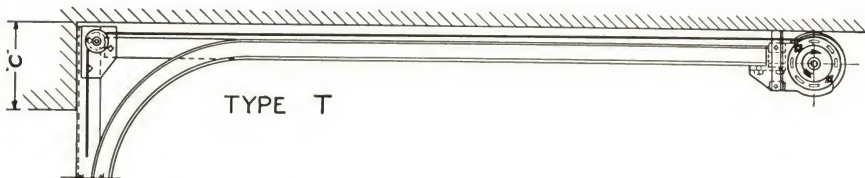
Two counterbalance stretch springs, exposed parallel along horizontal tracks. Each spring is connected to the side of the door by means of pliable plow steel cable. This is the type of counterbalance used in the Standard Model RoL-TOP described on page 29.



TYPE S

TYPE T

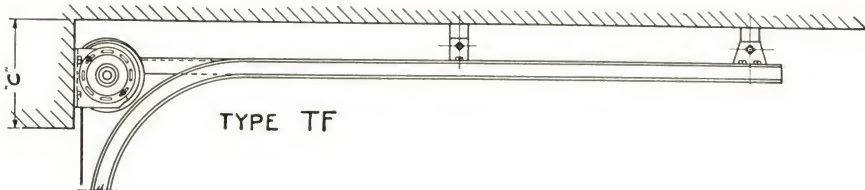
Single or multiple torsion spring counterbalance mounted around a solid steel shaft placed between horizontal tracks and winding up the lifting cables by means of scored drums on each end. Type used on the DeLuxe RoL-TOP Door described on page 27 (placed at back end of tracks except on chain operated doors and hi-lift lubricitorium doors).



TYPE T

TYPE TF

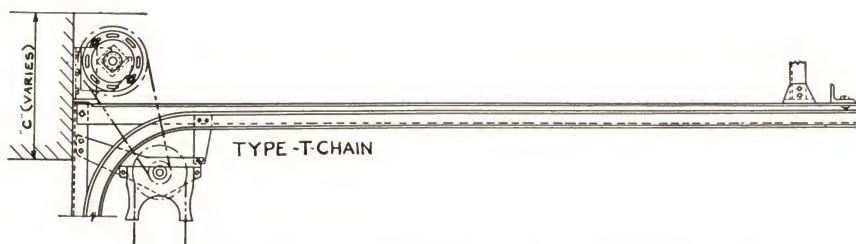
Single or multiple torsion spring counterbalance, same as Type T except that springs are mounted above lintel. This requires more clearance and head room. Illustrated on page 26.



TYPE TF

TYPE T — CHAIN

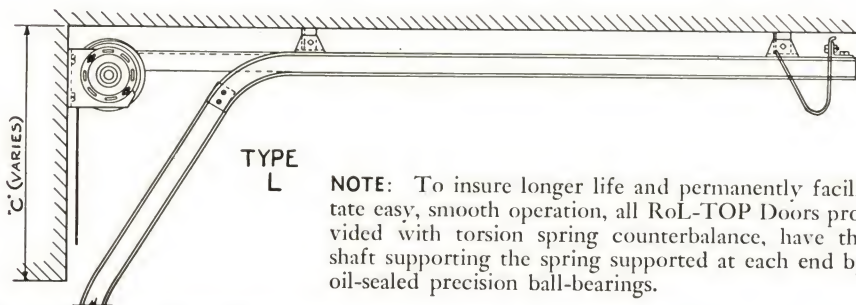
Single or multiple torsion counterbalance, same as Type TF but arranged for operation by chain hoist, in which case spring must be placed above lintel.



TYPE T-CHAIN

TYPE L

Special location of tracks to give clearance for hydraulic lift, such as is necessary in service station use. Single or multiple torsion spring counterbalance, same as Type TF.



TYPE L

NOTE: To insure longer life and permanently facilitate easy, smooth operation, all RoL-TOP Doors provided with torsion spring counterbalance, have the shaft supporting the spring supported at each end by oil-sealed precision ball-bearings.



Junior Model RoL-TOP

JUNIOR MODEL *A Low Cost Door*

The Junior Model RoL-TOP illustrated at the left is an unusually economical door ideally suited for today's low cost home. It operates and is counterbalanced in exactly the same manner as the "Standard" Model described on page 29. While it embodies Kinnear's high quality construction, various economies have been effected in its fabrication due to the fact that it is built only in sizes suited to the average residential garage opening, which permits lighter construction, as well as volume production. This is reflected in its low cost.

Though it has fewer panels than the other RoL-TOP Models its sections are neat and durably built of a select grade of lumber $1\frac{3}{8}$ in. thick, jointed and assembled with waterproof glue according to best mill standards. Panels are $\frac{1}{4}$ in. three-ply fir veneer. Hinges are stamped and formed of No. 13 U. S. gauge steel applied with through bolts. Double roller top corner support forces door snug to jamb. Cable is $\frac{5}{32}$ in. galvanized steel wire rope. Sheaves and rollers are Standard RoL-TOP ball-bearing. Lock has standard make cylinder with three keys. Tracks of .083 in. thick steel $1\frac{7}{8}$ in. inside depth and 1 in. wide. Hardware is given rust resisting coating and wood sections left natural. Sizes in which it is supplied are—

8'0" wide x 8'0" high
8'0" wide x 7'6" high
14'0" wide x 7'0" high

14'0" wide x 7'6" high
15'0" wide x 7'0" high
15'0" wide x 7'6" high

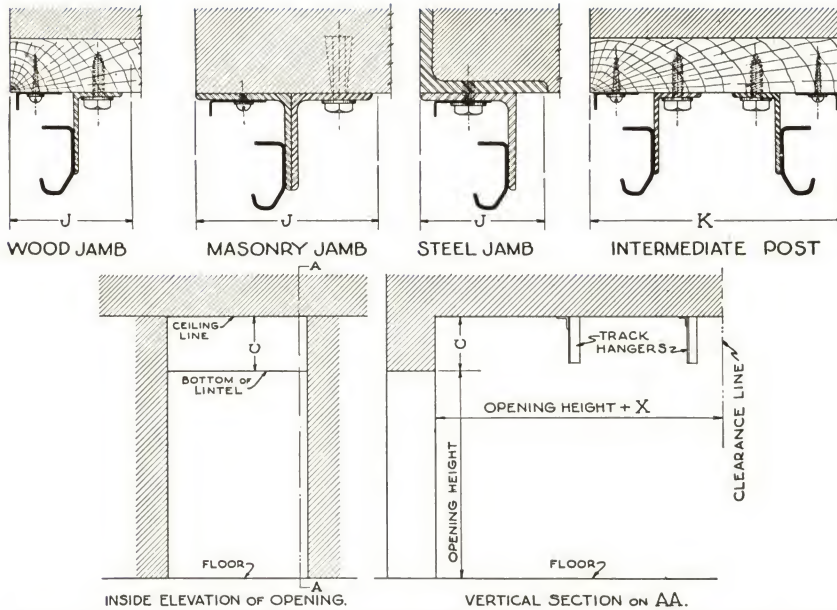
With this low cost door every home can now enjoy the convenience of an upward-acting garage door.

RoL-TOP Hi-Lift LUBRITORIUM DESIGN

No door has been previously developed that is so practical for the modern service station or lubritorium as the All-Steel RoL-TOP Door. It provides all the features of operating efficiency required for this type of use, plus a new standard in durability. An almost indestructible ruggedness that means less service in repairs and a longer life!

The Hi-Lift Type RoL-TOP is required when the door is to be used in front of the hydraulic lifts in service stations, where the clearance from the floor to the bottom of horizontal tracks must be considerably greater than the door height. It is furnished in either the Wood or Steel RoL-TOP Construction.

RoL-TOP Doors are showmanship equipment that is almost essential to the modern lubritorium.



TYPE OF DOOR	WOOD RoL TOP DOORS								STEEL RoL TOP DOORS							
	2' TRACK 15' CURVE				3' TRACK 15' CURVE				2' TRACK 6' DRUM - 15' CURVE				3' TRACK 10' DRUM - 15' CURVE			
	J	K	C	X	J	K	C	X	J	K	C	X	J	K	C	X
S-STRETCH SPRING	4' 5"	5' 5"	13'	28"	5' 5"	6' 6"	15'	28"	4' 5"	5' 5"	14'	24"	5' 5"	6' 6"	14'	32"
T-TORQUE SPRING	4' 5"	5' 5"	12'	33"	5' 5"	6' 6"	15'	33"	4' 5"	5' 5"	14'	38"	5' 5"	6' 6"	14'	44"
TF-TORQUE FACE or WALL	4' 5"	5' 5"	17'	28"	5' 5"	6' 6"	24'	28"	4' 5"	5' 5"	21'	24"	5' 5"	6' 6"	24'	24"
L-HIGH LIFT	5' 5"	6' 6"	VARIES	VARIES	5' 5"	6' 6"	72" MAX	VARIES	4' 5"	5' 5"	VARIES	VARIES	5' 5"	6' 6"	72" MAX	VARIES
T-CHAIN-CHAINHOIST	4' 5"	5' 5"	20'	20"	5' 5"	6' 6"	20'	20"					8'	8'	22'	24"

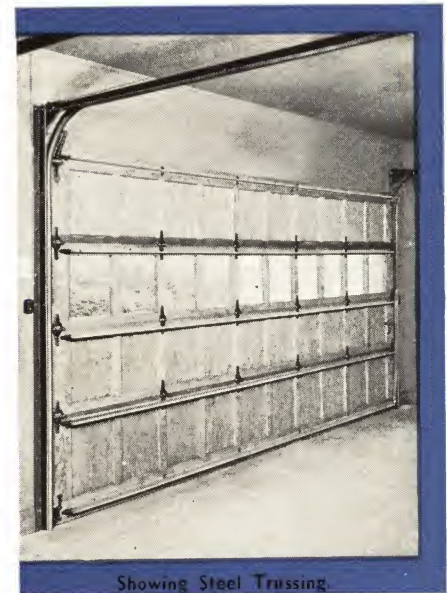


"Standard" Model RoL-TOP.

STANDARD MODEL

Where original low price is more important than added years of unusual service, the Standard Model RoL-TOP is offered. It operates in the same manner as the DeLuxe Model described on pages 26 and 27. Construction is similar, but counterbalance is accomplished by the conventional arrangement of two stretch springs placed parallel to the tracks. One spring is connected to each side of the door by means of pliable plow-steel cable. Hardware, angle-mounted tracks, sealing device and lock are the same as used on the DeLuxe Model.

The Standard Model is built in any size from 8 x 7 ft. to 12 x 10 ft. and also in widths up to 16 ft. when height does not exceed 8 ft.



Showing Steel Trussing

AUXILIARY EQUIPMENT

Long experience in making doors to meet individual requirements has contributed to the designing of a number of auxiliary units for use with RoL-TOP Doors. Besides motor operators and controls, see page 31, and Lubritorium design described above, are many others. A few among these are:

Sliding Center Posts or Mullion for Wide Openings. An ingenious and dependable arrangement for using two or more doors in a single opening too wide for the practical application of one.

Wicket or Access Door. A small, strong and durable door built into the large door, designed so as to give the major door the maximum strength and service. It saves opening large door to allow pedestrians to enter.

Automatic Opener. A pull cord arrangement for raising a door automatically, without the use of motor, by an auxiliary spring. An arrangement with a distinct advantage for fire stations.

Chain Hoist. For operation of large doors by means of endless chain and reduction gearing. Standard on doors exceeding 16 ft. 2 in. in width or height or 160 sq. ft. in area.

Special data on these and other devices may be had by calling on Kinnear.

STANDARD TRUSS REINFORCEMENTS

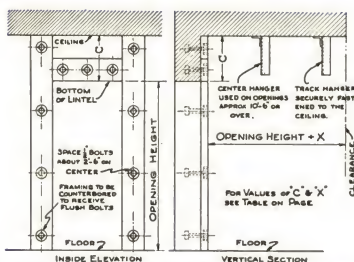
Though this extra quality feature is standard on all RoL-TOP Doors exceeding 12 ft. 2 in. in width, it is desirable auxiliary equipment the quality buyers will wish to consider for smaller doors. These special truss bars—two on the bottom section and one on each of the other sections—span the door, providing a remarkably strong, rigid structure when the door is either opened or closed. Being anchored to end castings, which are bolted with through bolts to the end stiles, they actually form a cradle of steel for taking the stress of the opening span. This arrangement minimizes the natural tendency for wood to warp and deflect. It also gives a high margin of safety for excessive wind pressure.

RōL-TOP Specifications . . . FOR RōL TOP DOORS

REMEMBER WHEN ORDERING

To insure against error, it is recommended that a sketch of the opening conditions (see below and page 29 for dimensional requirements) be furnished at the time of ordering, noting the width of the opening from jamb to jamb, height of the opening from floor to lintel, type of wall and jamb construction (if the recommended 2 x 6 in. timber framing is not used) headroom and side clearance available, desired clearance under the horizontal tracks and space back from face of wall available for horizontal tracks. Also note the number and location of sash sections (if one is sufficient it will be third from the bottom unless otherwise specified) whether the door is to be primed and if locks on two or more doors are to be keyed alike. If door is to be motor operated, give current characteristics.

Installation Clearances



RECOMMENDED PREPARATION OF OPENING

SCHEDULE FOR WOOD RōL TOP DOORS

HEIGHTS	UP TO				
	8'-2"	8'-3" TO 10'-2"	10'-3" TO 11'-2"	11'-3" TO 12'-2"	12'-3" TO 13'-2"
WIDTHS	UP TO 12'-2" WIDE	A	2 TRACK 5' 31" UP		D
	12'-3" TO 14'-2"	B	2 TRACK REINFORCED		
	14'-3" TO 16'-2"	C	3 TRACK PUSH UP		
	16'-3" TO 18'-2"				
	18'-3" TO 20'-2"				
				3 TRACK CHAIN OPERATED	

SCHEDULE FOR STEEL RōL TOP DOORS

HEIGHTS	UP TO				
	8'-2"	8'-3" TO 10'-2"	10'-3" TO 11'-2"	11'-3" TO 12'-2"	12'-3" TO 13'-2"
WIDTHS	UP TO 12'-2" WIDE	A	2 TRACK 18 GA DOOR PUSH UP		D
	12'-3" TO 14'-2"				
	14'-3" TO 16'-2"				
	16'-3" TO 18'-2"				
	18'-3" TO 20'-2"				
				3 TRACK 18 GA DOOR CHAIN HOIST	

Shipping Data

Crated for shipment in sections with hardware and other materials except glass and the materials necessary for properly preparing the opening for application of the door. Shipped under the 3rd freight classification in LCL.

WOOD RōL-TOP DOORS

Door Sections

Door sections are approximately 2 ft. high and panels approximately 12 in. wide except on special orders. Sections ship-lapped and have graduated end rabbet to fit RoL-TOP "Keystone" sealing device. Standard and special sizes which do not exceed 8 ft. wide and 8 ft. high will be furnished with stiles and rails either $\frac{1}{8}$ in. or $\frac{1}{4}$ in. Sizes 15 ft. and 16 ft. wide x 7 ft. to 8 ft. in height are $\frac{1}{8}$ in. thick, reinforced, with Kinnear special trussing members. Other special sizes exceeding 8 ft. by 8 ft. are $\frac{1}{4}$ in. thick with doors over 12 ft. 2 in. wide reinforced with steel truss members. Stiles and rails of doors of standard design of finest quality kiln dried lumber with panels of $\frac{3}{8}$ in. three-ply fir. Frame and panels of special woods obtainable from mill stocks can be furnished if specified. Sections can be arranged for glass as specified. Weight of glass affects counterbalance, therefore type of glass to be used should be specified. For uniform balance glass of double strength or lighter is preferred. Panels are framed with Ogee $\frac{1}{8}$ in. moulding.

Counterbalance

Standard Model RoL-TOP is counterbalanced by two matched, pretested oil-tempered stretch springs of a high safety factor, one running parallel to each horizontal track and connected to the bottom of the door with pliable plow-steel cable operating over ball-bearing sheaves.

Deluxe Model RoL-TOP is counterbalanced with a single or multiple torsion spring mounted around a solid steel shaft. The spring is oil-tempered and of high safety factor. It operates the door through pliable plow-steel cable operating over ball-bearing sheaves and over large diameter scored drums at each end of the spring shaft.

Hardware

Moderate size doors equipped with 2 in. steel tracks. Large doors equipped with 3 in. steel tracks. All vertical tracks are mounted on a continuous angle iron, providing a rigid, solid, heavy duty member. Ball-bearing rollers, which travel in the tracks are built with a one piece solid steel case, which operates around a hardened steel ball-bearing race and sleeve. Operating on a shaft made with a shoulder and independent of the hinge, it is free-floating and yet locks the door securely in the tracks. Roller of $1\frac{3}{8}$ in. diameter with twelve $\frac{3}{4}$ in. balls on small doors. For large size doors roller is of 2 $\frac{1}{8}$ in. diameter with ten $\frac{3}{4}$ in. balls. All hardware applied to door is of heavy duty design of malleable iron or pressed steel and is given protective finish. A large cylinder lock of standard make in connection with slide bolt fitted with release spring. Also, unless specified to be keyed separately two or more doors will be keyed alike. Master keying can be furnished at slight additional charge.

Sliding Post Installation

Where all doors are under 16 ft. 2 in. in width, a minimum headroom of 20 in. is required. If any door is over 16 ft. 2 in. in width a minimum of 30 in. is necessary. Add $6\frac{1}{2}$ in. to the above clearances if motor operation is required. As the application of RoL-TOP is made more elastic by the use of various auxiliary units, for all of which clearances cannot be scheduled in this Bulletin, it is recommended that you write Kinnear for details whenever special applications are required. It is also advisable to write Kinnear to see if any special arrangements can be offered when clearances called for in the above schedule are not available.

Auxiliary Equipment

In addition to the Motor Operators and Sliding Center Posts mentioned elsewhere in this catalog, Kinnear has especially designed numerous other auxiliary units for use with RoL-TOP Doors. Briefly, a few of them are:

CHAIN HOIST—For operation of large doors by means of endless chain and reduction gearing. Standard on doors exceeding 16 ft. 2 in. in width or height or 160 sq. ft. in area.

WICKET DOOR—A small pass or entrance door built in a large size RoL-TOP. For convenient pedestrian access.

AUTOMATIC OPENER—For raising a door automatically by a pull cord. Especially suited for fire stations.

LUBRITORIUM DESIGN—Special counterbalance and track arrangement for carrying door sufficiently high to permit use of hydraulic lifts.

ALL STEEL RōL-TOP DOORS

Door Sections

Each section is approximately 18 inches in width and formed of heavy, copper bearing steel, given a heavy zinc coating by the hot dip process. A stiffener, or reinforcing member is welded to the end of each section and at points where hardware is applied. Sections may have louvers, or be perforated. Light sections can be arranged for glass as specified. Standard glass light is 10 inches wide by 13 $\frac{3}{4}$ inches high, or 20 $\frac{3}{8}$ inches wide by 13 $\frac{3}{4}$ inches high. Outside hardware galvanized. As new galvanizing will not hold paint as readily as when allowed to oxidize or weather a short time, the door is shipped in the natural galvanized finish. If immediate painting is desired the door should be painted with a high grade metal protective coating suitable for galvanized surfaces. To get the most satisfactory results, and to save time in field painting, a factory coat of paint, suitable to galvanizing, will be furnished at small additional cost, is highly recommended.

Counterbalance

See description of "Counterbalance" in specifications above, describing Wood RoL-TOP Doors.

Hardware

For specifications on tracks, rollers and hinges see "Hardware" given in above listing on Wood RoL-TOP Doors. Lock assembly is furnished with a standard make cylinder lock. Two or more doors are keyed alike. If master keying is desired, it must be specified when ordering and it will be furnished at small additional charge. No allowance will be made for lock which is supplied as standard. The type of jamb construction on which the door is to be mounted must be specified when ordering, if correct type of mounting bolts are to be supplied.

Finishing Trim

The All-Steel RoL-TOP is arranged for lapping the jamb. Therefore, if any finishing molds or trims are desired, they are to be supplied by the purchaser.

Sliding Post Installation

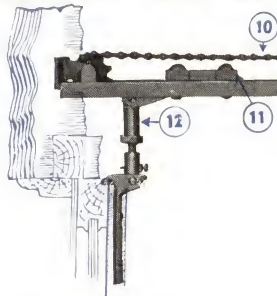
Where doors are mounted on 2 in. tracks, a minimum headroom of 19 inches is required. Where doors are mounted on 3 in. tracks, a minimum of 22 inches is necessary.

Auxiliary Equipment

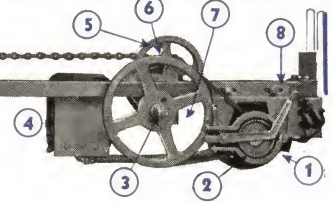
See specifications under Wood RoL-TOP given above (wicket doors an exception).

KINNEAR ROL-TOP *Electric* DOOR OPENER

OPENS OR CLOSES THE DOOR WITH EASE, SPEED AND SAFETY



SIMPLY AND ECONOMICALLY INSTALLED



13 QUALITY FEATURES

1. Electrically operated spring-set brake for positively stopping the door without shock to door or operator.
2. Standard make electrically reversible motor of $\frac{1}{4}$ to $\frac{1}{2}$ hp. depending upon door requirements.
3. Safety slipping clutch for allowing motor to run freely in case door operation is prevented by some obstruction.
4. Remotely controlled magnetic reversing switch for reversing operation of motor.
5. Steel cut gears connected by a square jaw clutch—dispensing with troublesome pin shearing.
6. Graphite and bronze oilless bushings minimizing wear and eliminating need for frequent servicing.
7. Accurately adjustable screw type limit switch.
8. Motor position adjustment for tightening tension on V-type driving belt.
9. Three button wall-mounted operating station.
10. Steel bicycle type roller chain connects driving mechanism to door draw-bar.
11. Roller chain take-up on roller traveler.
12. Special draw-bar for neutralizing the variable movement of the door.
13. Finger tip control.

A detachable connection for easily and quickly releasing the draw-bar from the door in case of current failure can be furnished at an extra charge.

CONVENIENT CONTROL



PUSH BUTTON SWITCH—Three button wall mounting momentary-contact operating switch supplied as standard equipment. $3\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{1}{4}$ in. Small additional charge for extra switches. Can be operated by driveway plate or key operated post. In an emergency, "Stop" button

will break the circuit, but permits the door being started by a touch of the proper button.

DRIVEWAY POST—With this neat switch post located in the driveway, a Rol-TOP motor operated door can be opened or closed without leaving the car. Equipped with a lock, it can be operated only by those having a key.

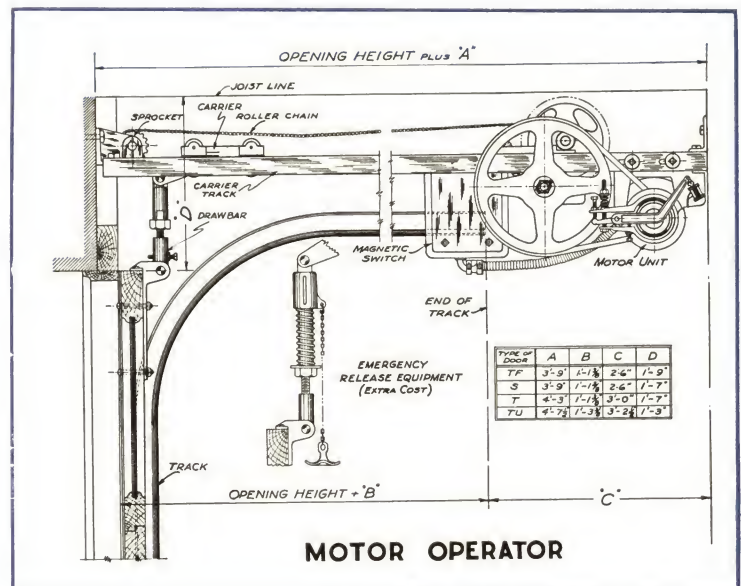
Kinnear is in a position to meet any individual or special requirements.



years, have built door operators. Equally suited for private garage or public building.

No detail has been spared to build in this unit the maximum in convenience and lasting service. Door operation is automatically controlled by limit switch and electrically operated spring-set brake. Operation is imparted to the door by means of an adjustable draw bar ingeniously designed to eliminate shocks. For the emergency, a slipping clutch allows the motor to run freely in case an obstructing object in the doorway stops the travel of the door. Compare these features alone, to the automobile you drive, and you'll quickly appreciate their importance to safety and dependability in door operator design. But added to these are also the ten other quality features illustrated.

The Rol-TOP Operator is built for any size door . . . the size of door determining the size of unit required. By having a magnetic switch, providing for the door being completely opened or closed by a momentary contact of the control switch, any of the control stations described at the left can be used with it.



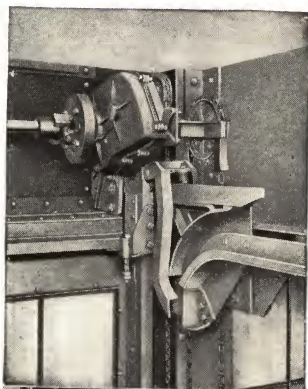
THE ORIGINATOR OF THE INTERLOCKING SLAT DOOR

KINNEAR
ROLLING DOORS

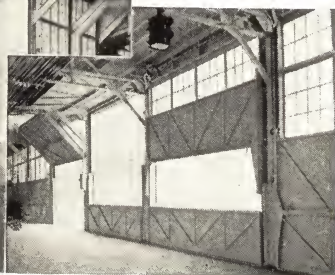
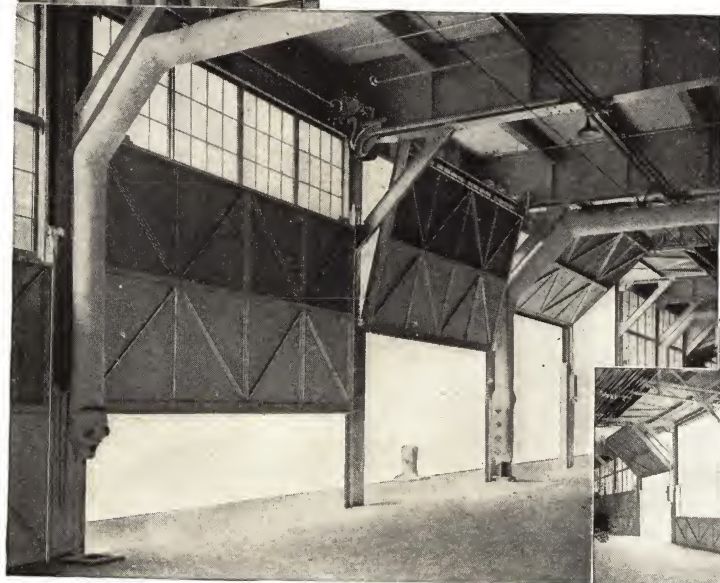
Bulletin No. 23

Special KINNEAR DOORS THAT SOLVE PARTICULAR PROBLEMS *and* REQUIRE SPECIAL RECOMMENDATIONS BIFOLDING

No. 3 BIFOLD . . . WEIGHT COUNTERBALANCED



A portion of the battery of Kinnear Bifolding No. 3 Doors installed in Pier 88, New York Harbor. Illustrates how the lower section of door may be disconnected to provide a barrier to the opening.



This door is particularly suited for openings 12 ft. or higher, where heavy construction is desirable. Permitting the use of sash sections, it provides heavy duty service as well as admittance of light. Though built in both wood or steel, they are generally used for freight sheds and piers, thereby making steel preferable. Constructed of two sections made up of heavy galvanized steel sheets applied with closely butted joints to an angle frame made of members 4 in. or larger. The lower section telescopes with the upper and then the two sections, as a unit, slide to the overhead position on heavy steel horizontal tracks. The door is counterbalanced by cast iron weights encased in the columns. Operation is usually by chain and reduction gearing. Through the use of high quality bearings in all bearing points, only a small amount of energy is required to start the door in motion.

Counterweights are connected to the door by block chain of high safety ratio, built of die formed links, producing not only a strong but also accurately running chain over the sprockets. To prevent the accidental drop of the door, in case of lifting-chain breakage, when operating such tremendous weight, an automatic safety lock is provided. A cam grip, which operates on an angle guide and is held open by the weight of the door, is closed by a heavy spring force. Should the lifting chain accidentally break, the cams will grip the angle guide and support the door in place. The action of this lock is similar to an elevator safety lock.

When the door is used on the upper decks of a pier it may be arranged to provide a barrier. The lower section of the door can be subdivided into two parts, the lower

part being about 4 ft. high and detachable from the upper part of the section. The door can be raised with the two parts operating as one section or the lower part can be detached and allowed to remain in the opening as a barrier or guard to prevent pedestrians from passing through the opening.

The chain sprockets are driven by the hand chain through spur gear reduction. These reduction gears are of steel, having machine-cut teeth and are enclosed in an oil-tight housing. All bearings supporting the counterweights

or doors, are supplied with grease-tight ball-bearings.

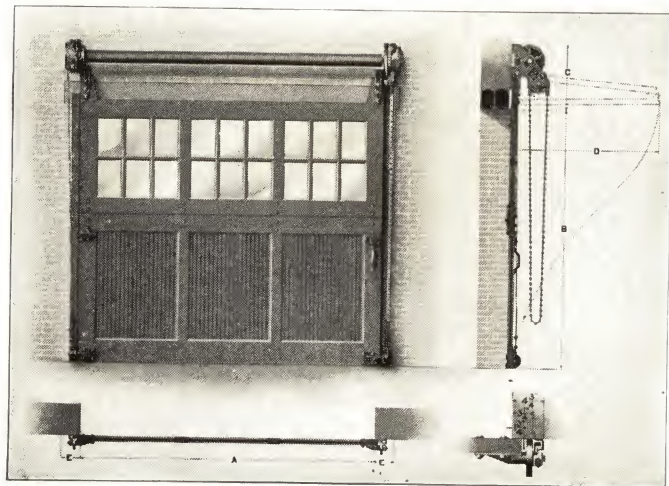
As the door is engineered for the individual job, write for special recommendations.

No. 5 BIFOLD . . . SPRING COUNTERBALANCED

The Bifold No. 5 combines the qualities necessary for a heavy-duty, quick-acting, space-saving wood door with the advantages of minimum clearance requirements and a large sash area. When desired it can also be constructed of steel. It is composed of two leaves, or sections, hinged and pivoting from brackets at the top corners of the opening.

Attached to a torsion spring counterbalance shaft placed above the lintel by means of steel cable and traveling in steel jamb guides, it folds to a position above the opening. Because of its simplicity, it reduces maintenance to a negligible factor.

When you are considering the installation of Bifolding Doors, Kinnear Engineers will gladly submit recommendations for your particular needs.



VERTICAL SLIDING ROL-TOP



PRACTICAL VARIATION

Another unusually practical variation of the All-Steel RoL-TOP Door, when sufficient available headroom permits its use! As its name implies, the Vertical Lift RoL-TOP raises vertically. Providing all the advantages of upward-action with heavy, durable construction, facilities for light sections or windows and maximum compactness at an economical price, makes it a door that is preferred for many industrial applications.

With the one exception that it travels upward in vertical tracks secured to the wall, instead of overhead tracks, it is identical in operation, method of counterbalance and heavy-duty rugged construction, to the DeLuxe Model or Type T All-Steel RoL-TOP fully described on pages 25 to 30.

Since the torsion spring counterbalance mechanism is placed on the wall below where the door extends when open, the Vertical Lift RoL-TOP requires only a headroom of door height, plus 3 inches, with a 7 in. clearance at each side of door. For other specifications see page 30.

This is an ideal door in buildings where merchandise is to be piled high and close to the door or where overhead equipment make it necessary to have all equipment close to the walls.

VERTICAL SLIDING DOORS



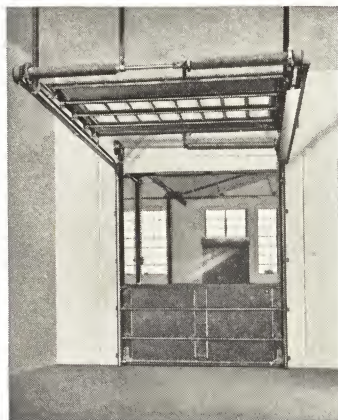
This is one of the Kinnear types suited for freight houses, piers and warehouses. The door comprises two or more sections consisting of a trussed frame covered with sheet metal or corrugated iron, hung independently with chains connected with counterbalance weights. Operated by means of endless chain and suitable reduction gearing. Where doors are mounted on steel columns, guides and weight boxes may be incorporated as a part of the column.

When a door of this type is desired, write for more complete information.

(Doors can also be furnished in wood.)

BARRIER ROL-TOP

DISCONNECTED LOWER SECTION PROVIDES A BARRIER



The new Barrier RoL-TOP is an adaptation of the All-Steel RoL-TOP that is ideal for any commercial or industrial opening located at street level or points where there is a hazard to employees or the public. By the release of a simple catch, the lower two or three sections of the door can be disconnected from the upper sections. When it is desired to clear up the opening for the admittance of air and light, the upper unit can be raised in the same easy, convenient manner as an ordinary RoL-TOP Door, allowing the lower unit to remain in the opening as a barrier against the passage of cars or people through the opening.

In general construction the Barrier RoL-TOP is similar to the DeLuxe Model RoL-TOP described on pages 25 to 30. It is built in any size and with any number of sections arranged for sash. Counterbalance is of the safety torsion spring type. The shaft for counterbalancing the lower unit is placed over the lintel. For the upper unit, a shaft containing two torsion springs arranged in an ingenious manner for effecting perfect counterbalance is located at the back end of the horizontal tracks. This arrangement of counterbalance is coordinated so that the door can be opened easily as a single unit, or so that the upper unit can be raised or lowered independently.

This door is the outgrowth of a demand Kinnear has found prevalent. During their long years of experience they have been frequently called upon to design special doors that would provide this two-fold service. Now, the purchaser of one door or hundreds of doors can have this convenience without bearing the cost of special development work. Of course, even now each door is built for the individual job, so if you have openings involving a hazard, or where you wish to prevent trespassing, ask for recommendations.

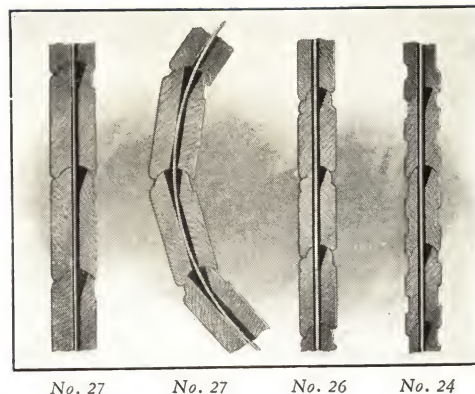


WOOD ROLLING DOORS and PARTITIONS

For Separating Classrooms, Departments, Etc.

Kinnear Wood Rolling Doors and Partitions are the same in principle of operation as the Steel Rolling Door with all mechanism concealed. Slats may be made of wood to harmonize with interior finish. Posts between partitions may be removed. Is especially built in any size for either interior use or exterior situations where chemical action is liable to deteriorate metal such as around chemical plants and roundhouses. Slats of long leaf pine, cypress, quartersawn oak or birch are assembled on phosphor bronze tapes in the manner illustrated, so that during flexure of the curtain there is no danger of pinching the tapes.

Slats No. 24 and 26 are for interior use and No. 27 is for exterior use. They are given a preservative coat when used for exterior openings. Like the Steel Rolling Door described on pages 6 to 13, this door or partition can be installed either between the jamb or on the face of the wall. Upon request, Kinnear Engineers will gladly submit detailed recommendations.



No. 27

No. 27

No. 26

No. 24

KINNEAR DOORS THE PRACTICAL SOLUTION *for* SPECIAL USES DESIGNED *and* BUILT *by* EXPERIENCED *and* SPECIALIZED ENGINEERS



KITCHENETTE OR STORAGE COMPARTMENT

With space at a premium in apartment house design, Kinnear Interlocking Steel Rolling Doors have an important place; for closing off kitchenettes, dressing compartments, and storage compartments. Coiling above, with all mechanism concealed from sight, they require no usable space and are neat when opened or closed. A special flat-surfaced slat, permitting any type of decorative finish, is used. Counterbalanced with a spring, they open or close with almost the ease of operating a window shade. They can be made as an integral part of the kitchen cabinets or installed in reveals provided in the building walls. The illustrations show one of 179 Kinnear Doors, 5 x 7 ft. in size, installed in the Tudor Apartments, in New York City. Both the owners and the tenants of the building have expressed considerable enthusiasm over the convenience of these doors.

Though the general design of Kinnear Doors for this purpose is described elsewhere in this catalog, write for special recommendations when considering this type of equipment.

If Kinnear Engineers have the opportunity to work with the architect at the time the building is designed, every detail of the installation can be most practically worked out.



MARINE DOORS

While previously used in numerous ways by the marine industry, the design of Kinnear Doors readily suggests itself for many new and practical adaptations to marine use. This is particularly true with the more rigid requirements that are being established for fire protection in ship construction. Having proved their merit as a positive fire guard on commercial and industrial establishments, they are excellent for the protection of ship passageways, stairways and elevator shafts. They prevent drafts which cause the spread of fire, and also are built to withstand intense heat. By the use of a powerful pushdown spring, their automatic closure is made positive. A safety governor regulates the closing—thus preventing injury to persons in the opening when the door is closed. Counterbalanced at all times, a person can manually raise them to make a quick exit.

The fact that Kinnear recently equipped the hangars on Government airplane carriers with specially built doors 38 ft. 8 in. x 17 ft. in size—doors to withstand tremendous water and wind pressures—illustrates in a small way the ability of Kinnear to cope with various marine problems. Write for special recommendations.



ROUNDHOUSE DOORS

Because of their convenience and saving in space, Kinnear Interlocking Slat Rolling Doors are ideal Roundhouse Doors. Built either in wood, such as described on page 33, or of aluminum interlocking slats, they withstand hard usage as well as withstand the effects of the chemicals present in the atmosphere near a roundhouse.

The illustration at the left shows part of 8 Kinnear Doors, 12 ft. 5 in. x 17 ft., recently installed at Lima for the New York, Chicago and St. Louis Railroad company. These are built of cypress and operated by chain and reduction gearing.

In the modernization of railroad equipment, Kinnear Doors should be carefully investigated, not only for roundhouse use but also freight sheds, stations, and yard buildings.

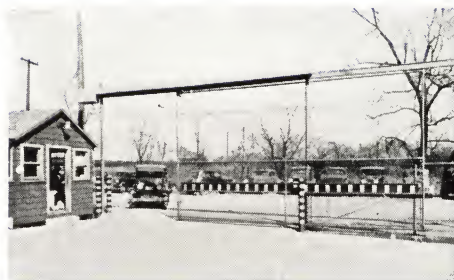
TRUCK DOORS

Kinnear Steel Rolling Doors are ideal for numerous styles of trucks. Rolling up in a small compact coil, they are out of the way and allow the truck to run close to the loading platform. Spring counterbalanced, they open or close easily and quickly. When closed, they seal the opening against the elements and dirt. Built of steel, they withstand hard usage, and are burglarproof and fireproof. In case of accidental damage, one or more of the slats can be quickly replaced.



Kinnear Engineers can design a Steel Rolling Door to exactly suit your truck door needs.

KINNEAR ELECTRIC GATE OPERATOR



The Kinnear Gate Operator is a very practical industrial adaptation of Kinnear's in building power operating equipment. It provides for operating the sliding type of industrial gate from one or more remote control stations. Gate watchman can be given other duties, or gate can be controlled by other office employees located within view of the gate.

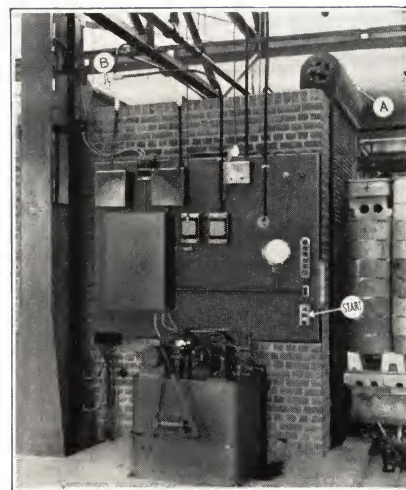
For further information on the adaptation of this operator to a particular problem, write Kinnear.

CORE OVEN DOORS

The practicability of Kinnear Steel Rolling Doors for core oven use as well as Kinnear's ability to cope with difficult problems can be illustrated by a brief description of this pottery kiln installation. The picture shows the charging end of a pottery kiln. It is provided with two Kinnear Core Oven Doors, so arranged as to form an airlock, thereby making it possible to make the charging operation entirely automatic. Kinnear also furnished the complete electrical control.

The operating cycle is briefly as follows: The attendant presses the "Start" push button—door "B" closes and the pusher equipment returns to pick up the ingoing car. When door "B" reaches its closed position, door "A" opens, allowing the pusher to pick up the loaded car by the front end. The car is then pulled into the vestibule and immediately door "A" closes. As soon as door "A" closes, door "B" opens and the car is pushed into the kiln. This permits approximately one and one-half cars more per day to be run through the kiln as well as reducing the loss from warped ware, and so is quickly paying for this Kinnear installation.

If you have any similar problems, Kinnear will be glad to study the conditions and submit complete and detailed layouts and recommendations. Our specialized door experience insures practical solution.



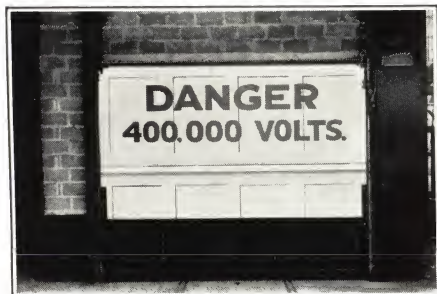
X-RAY VAULT DOORS

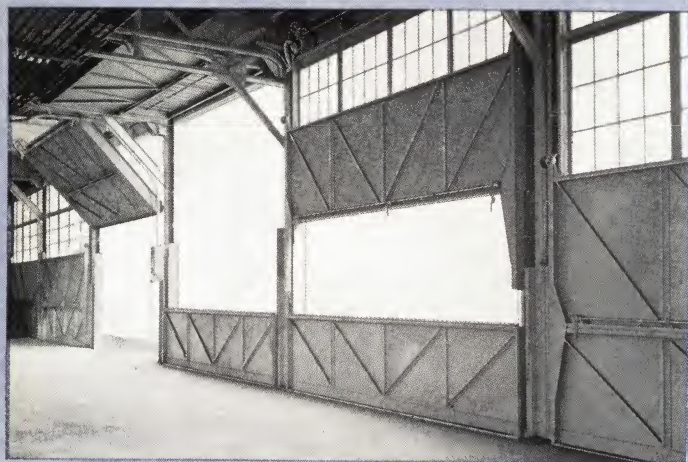
The door illustrated is a special Kinnear Door installed for the American Manganese Steel Company, Chicago, Illinois, for covering an opening in a large X-Ray vault where large steel castings are inspected with X-Ray. The situation required particular attention. In order to insulate the door against the penetration of the X-Ray, the door required a covering on the inside of lead $\frac{3}{8}$ in. thick. This lead covering was mounted on a wood door of a solid thickness of $2\frac{1}{4}$ in. The total weight of this door and covering was approximately 4500 pounds. The size of the opening was 12 ft. high.

The door is raised in thirty-five seconds and lowered in approximately the same time.

The operation is effected by winding $\frac{3}{8}$ in. steel cables, which were attached to the door over a large drum driven by electric motor, through gear reduction housed in an oil-tight box. This operator is provided with a dual control, which gives protection against the door over-running and striking either the bottom of floor slot or the stops at the top.

In addition to this type of door, Kinnear Steel Rolling Doors are ideal for X-Ray rooms in hospitals, photographic dark rooms, etc. They provide a device for quickly sealing any opening against light.





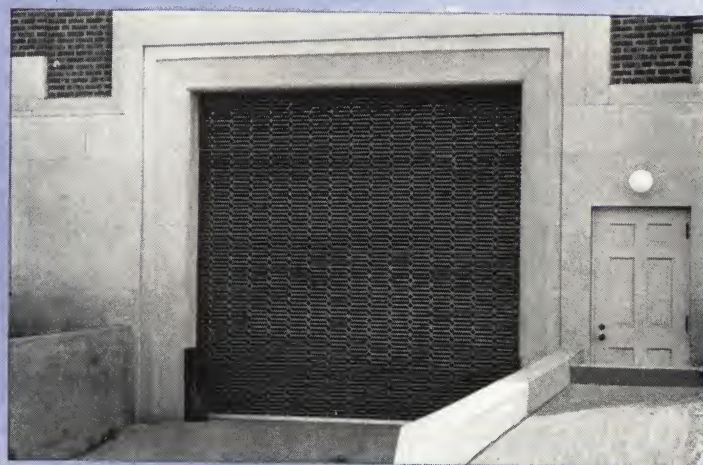
The Kinnear Organization is International. With an Office or Agent located in all principal cities, there is always a trained Kinnear Engineer Representative close at hand. Call for his specialized door services. There's no obligation, and if he is unable to answer your questions, he will gladly come to "Door Headquarters" and get the information you need. No problem is too difficult for Kinnear's experienced door engineers and they will design and build any kind of Upward-Acting Door for any kind of opening . . . offering the efficient solution to your individual door problems.



The **KINNEAR** MANUFACTURING COMPANY

**820-870 Fields Avenue
Columbus, Ohio**

PACIFIC COAST FACTORY — SAN FRANCISCO, CALIFORNIA



BRANCH OFFICES

NEW YORK, N. Y., 30 Rockefeller Plaza

CHICAGO, ILL., 1919 Randolph Wells Bldg

WASHINGTON, D. C., 410 Bond Building

BOSTON, MASS., 6 Jersey Street

PHILADELPHIA, PA., 1321 Arch Street

DETROIT, MICH., 7710 Woodward Avenue

NEW ORLEANS, LA., 529 Hibernia Bank Bldg.

CLEVELAND, OHIO, 7704 Carnegie Ave

CINCINNATI, OHIO, 2335 Reading Road

BALTIMORE, MD., 210 Fidelity Building

PITTSBURGH, PA., 1822 Oliver Building

AGENTS IN PRINCIPAL CITIES